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Between War: A Competitive Global Framework Examining Reconstitution and National Power

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BETWEEN WAR: A COMPETITIVE GLOBAL FRAMEWORK EXAMINING RECONSTITUTION AND NATIONAL POWER

Lt Col Kevin M. McNellis, USAF

Abstract

The Cold War is ended; now, we are between war. Fundamentally, this paper addresses the question of what should we do *between wars* . Reconstitution is a 'hedge' in our strategy to reduce standing military forces in this peaceful interim. The purpose of this paper is to critically examine reconstitution in the context of national power and provide a basis for political-military-economic, and psycho-social actions as we contract and restructure forces.

Military power provides short-term security; economic strength provides for the long term. Therefore, the paper also explores how to build national power between wars. A flow model of national power is developed and a framework for international competition is presented as the new paradigm to replace the Cold War bipolar mindset. A combined co-operative/hobbling external strategy plus defense fusion internal strategy to preserve our unchallenged military superiority is defined. *"Hobbling" rivals can be achieved by seeking peaceful, supporting goals—not just predatory tactics.* Making the UN work and offering US leadership in regional issues can reduce the threat levels other nations perceive and thus, their need to build national military forces. The cost-constrained strategy focuses on maintaining relative advantage against peer competitors and recommends:

- Selectively downsizing our military but retaining decisive capabilities;
- Encouraging collective action to reduce suspicions and discourage military buildups
- "Hobbling" rivals' power projection capabilities and pre-empting foreign arms suppliers.
- Stressing economic power and building national wealth between wars, so we will have the economic/industrial base to prosecute the next war.

The strategic imperative: It doesn't matter how uncertain the environment we live in, provided we can react quickly enough to changes. In times of peace, we should emphasize economic power, build wealth, and selectively maintain the decisive powers in our military. Reconstitution—rebuilding global-sized armies— is inconsistent with this flexibility. Preserving weapons or production tooling is expensive and the systems saved may be irrelevant to future conflicts.

We must **fuse** agility by sharing functions between military and economic development so we can optimize peacetime allocations and not waste time in wartime transition. We don't want to reconstitute by stockpiling obsolete inventory or preserving outmoded manufacturing processes. We want to "constitute" the future defense technology-industrial base by continuing technical R&D to ensure superior military weapons and improve commercial producibility, manufacturing flexibility, and cost-effectiveness for affordability.

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"The Cold War is over and the free world has won." President's Message[1]

"We and our Allies must be able to reconstitute a credible defense faster than any potential opponent can generate an overwhelming offense." National Security Strategy[2]

"No one is talking about the *reconstitution* of the industrial base..." Senator Nunn[3]

Clausewitz's ON WAR is a fundamental piece tying a nation's military means to break the enemy's will in order to achieve political ends—an ultimate life and death competition. This paper examines *between war* —how can America build national power in the peaceful hiatus and what role should the military play in a competitive world dominated by economic and political contests—not threats to existence. Competitiveness is explored in an international framework—not bi-polar, Cold War spheres. Key concepts are:

- "Hobbling" competitors—a denial strategy—is equivalent to building internal strength. Military power is *relative* . We should selectively maintain decisive military functions.
- Private firms' strategies for defense industry restructuring may not meet government's competition, surge, investment, R&D, and productivity goals.
- *Reconstitution* is a flawed approach for long-term uncertainty; fusing military and economic power is essential between war. *Defense fusion* is the recommended strategy.
- If the future cannot be forecast accurately, our strategy should focus on building flexible, agile forces and an industrial base able to react quickly to change.

Rather than Clausewitz's *separation* of military and political powers, this paper argues that between war, political, military, economic, and psycho-social powers must *merge* to build national power and wealth. A strong economy is vital to long-term national security.

THE PROACTIVE PREMISE: IT'S A FOOTRACE

With the collapse of the Soviet Empire, the US will significantly downsize its global forces to a small, capability-based force suited to regional, low-intensity conflicts. In the near term, we expect our restructured military to yield a "peace dividend"--budget savings--as the smaller force deals with smaller crises. When faced with a large, global threat in our future, we will then have to reconstitute our defenses—ostensibly, to Cold War proportions.

Today, the US is trying to prudently reduce our Cold War forces while maintaining an industrial base to reconstitute a technologically superior force. *Reconstitution is a*

competition in time. The following story illustrates a smarter, faster strategy for the race—winning by relative advantage.

> Two campers hear a hungry bear growl from nearby trees. They bolt out of their sleeping bags and one camper starts putting on running shoes. His friend yells "Come on, let's go!" and shortly they're off and running. With the bear in hot pursuit, one man asks the other -- "Do you think those running shoes will help you outrun the bear?" To which the other replies -- "No, I don't have to outrun the bear; I only have to outrun you!"

Relating the story to generating military power highlights the major change in our strategic situation—the bear's there but our principal race is with other competitors. We built the best weaponry possible to face a perceived 10'-tall Soviet bear; today, we don't have to outrun *potential* military capability. Our race is against many "campers" — **world competitors.** *Uncertainty* is the defining characteristic. Notwithstanding the distributed nuclear weapons in the former Soviet Union, we are the sole military superpower—we start with a lead. As we downsize, we must ***safeguard*** our force regeneration capability to quickly and efficiently meet competitors' challenges. The story also suggests using our competitors' *cooperation* to our advantage — an intriguing idea. Clearly, the focus should not be on acquiring expensive, fast shoes but emphasizing relative advantage in winning the race.

Game theory offers another racing tactic: ***slowing down or stopping your competitor would be equally effective in winning the race.*** Building a global military power takes time: Hitler took 7 years; FDR's response required 5-7, and Reagan's recent military buildup took 5-7 years. If we believe we will have at least a 5-7 year warning to reconstitute, we should *internally* develop capabilities to rebuild in less time, and *externally* attempt to "hobble" our competitor so it will take him longer. Each step required by our opponent to build and field trained forces can be viewed as a potential target to derail his reconstitution effort. Hobbling isn't limited to predatory tactics. When nations' fears and suspicions are reduced, rationale for arms competition is diminished. Encouraging collective security may discourage building up national armies which accomplishes our purpose. An effective, competitive strategy includes both internal and external approaches:

- Minimize our rebuilding time from initial warning indicators to a deployable, combat-ready fighting force. (Decision-making under uncertainty is the key function.)
- Pre-empt, deny, or disrupt "peers" (potential enemies) to prolong their preparations.
- Encourage collective action so our competitors feel less threatened and contribute to a common force rather than developing their own military force structure.

This paper offers a new organizing concept for reconstitution; namely,

- Actively engaging—using political, economic, and military forces in proactive strategies to hobble or pre-empt enemy reconstitution, while
- Optimizing our force regeneration ability within an austere budget.

This is a fundamentally different approach than our current, internally-focused plan for rebuilding forces. Taken together, *offensive* tactics plus traditional *defensive* ones form a more effective reconstitution strategy. This would be cheaper than maintaining large standing forces or preserving excess capacity in "warm" production lines. Reducing military forces world-wide could yield a more lasting peace. Developing proactive options gives us more ways to win.

Overview. This paper develops a competitive framework to define an efficient reconstitution strategy. Tactical fixed-wing aircraft (TACAIR)—one of the most expensive force elements—illustrates my defense fusion strategy. Topics are sequenced to explain:

1. Four arguments that shape this competitive reconstitution strategy.
2. A US force development model in a world-wide competitive framework
3. Our current reconstitution approach and why realities prompt adjustments
4. Potential enemies and available proactive strategies
5. Addressing the conflict spectrum: focusing reconstitution efforts
6. Putting the industrial component in context: triggering production
7. Industrial Policy: *industry* views and implicit *government* strategies.
8. Specific applications to the four tactical aircraft sectors—a decisive military element.
9. Summary. Conclusions, recommendations, areas for further study.

I. WHY A NEW FRAMEWORK IS NECESSARY -- MY FOUR ARGUMENTS

The purpose of this paper is to provide *a basis for action* today to shape the future. Yes, we "won" the Cold War and a peace dividend from force downsizing is appropriate. But our intuition also says we should be doing something for the future peace. Our current "Base Force" strategy retains a variety of capabilities to face an uncertain threat. On what basis will we argue against marginal cuts from the Base Force? How do we justify a future upgrade or a new weapon? Already, it appears we're losing ground.

> General Colin L Powell, chairman of the Joint Chiefs of Staff, said in a speech yesterday that the Bush Administration's plans for a post-Cold War "base force" of 1.6 million service personnel is not "locked in concrete" and can probably be cut further without jeopardizing security. (President Clinton)...would cut the force by an additional 200,000 and pare defense spending by an additional five percent over five years...[4]

We've breached the *sanctity* of the Base Force as the absolute minimum—it will go lower. However, the Base Force concept has been a successful *holding action* preventing a "hollow force" and slowing the rate of drawdown. Successive shrinkage based on concurrent Russian drawdown makes sense; unilaterally disarming to meet an internal budget bogey doesn't. We are trying to employ power, maintain cohesiveness, and drawdown smartly. Based on the Defense budgets since the Berlin Wall fell, I predict we will merely "grandfather" current weapons programs, continue reducing present forces, and extend, defer, or cut future programs until we develop a credible justification for funds. Instead, a cost-constrained, competitive strategy is urged. Four tenets frame my approach:

#1. "Safeguard" Strategy — retaining Super-Power status.

> War is a relative matter. Our side does not have to match up to some ideal of military weaponry; we just have to be better than the enemy.[5]

Our mission is to remain the unchallenged military superpower. As we reduce force levels world-wide, our relative advantage diminishes. Our objective is to prevent emergence of a new power capable of force projection threatening US interests. Although we enjoy advantage now, safeguarding our lead requires continual pro-active prevention. Soviet *containment* is finished as a military strategy. *Deterrence* seeks to dissuade a *capable* enemy from action. I seek to **prevent any competitor** from becoming that powerful. Competition is the fundamental framework with military, economic, and political dimensions waged simultaneously against many competitors. We must look outward.

#2. Austere Defense Budget.

> The end of the cold war has removed the rationale for decades of extreme vigilance; the much discussed "peace dividend" will probably translate into military layoffs, equipment cuts, withdrawal from foreign posts, and general retrenchment in prestige.[6]

The US was the world's sole economic superpower with economic and technological leads far ahead of any competition. Our national debt, budget deficit, trade imbalance, and declining infrastructure demand a greater share of the resources once marked for security. Our military strength springs from our economic strength and political will; re-prioritizing is proper. However, some military "insurance" must continue. When budgeteers pose a 7-year warning time to prepare against an enemy, it outspans our 6-year military budget. Logically, if we see nothing now—nothing would be budgeted; there's time to prepare. Similarly, if the next war is 20 years away, what is the cost of doing nothing now? What's the risk? We spent billions against a threatening enemy. Lacking one, we cannot support military expenditures. If we did something, what should it be? Justified on what basis? Trick questions? Maybe, but there are sufficient arguments in a **tight** fiscal environment

to deny all but a trickle of funds. There must be compelling evidence to overcome the "do nothing" alternative.

"Hobbling" competitors' efforts to build threatening power projection capabilities is cheaper than amassing large US forces. Pre-empting, co-opting, denying, and disrupting potential enemy capability directly affects the arms balance. Preventing an arms race is less burdensome on our economy and reduces the world's military destructive potential.

The defense budget is dropping further as I write this paper. I want to develop a workable safeguard strategy even if the defense budget is reduced by 40-50%. Assuming a cut of this size, will force efficiency in reconstitution planning. Maintaining a "warm" production base for any defense industry will be an extreme exception.

#3. DTIB is Only Part of Force Reconstitution.

US defense technology-industrial base (DTIB) was the "Arsenal of Democracy" in W.W.II and provided the qualitative edge saving lives in the Gulf War. DTIB survival has been a primary concern in anticipating reduced defense spending. I do not argue *against* DTIB, but point out that a fighting force must *also* have doctrine, training, supportability, etc. to "win." I argue for balance. Unambiguous warning, building a political consensus, coordinating action agencies, and filling the ranks are also essential reconstitution factors.

A reduced defense budget will dictate selective choices. Long lead items without commercial equivalents, military-unique industries and technology, competitors' advantage in DTIB sectors, and cost and difficulty of restarting US production will guide the prioritization of DTIB policy. Four observations are obvious:

- Some DTIB sectors deserve less priority and may be suspended.
- We can allow competitors' DTIB to continue in low priority sectors but we should attempt to out-compete, pre-empt, disrupt, or deny critical sectors.
- If—despite our efforts—competitors produce threatening weaponry, we should then target other factors in their military preparedness: warning, consensus, training, etc.
- We are managing risk. Our "gambling" must be prudent.

#4. TACAIR Has Four Distinct Components Dictating Separate Plans.

Too often, a class of military hardware—tanks, ships, or airplanes—is treated as *homogeneous*. Distinct elements are wrongly viewed as "sufficiently similar" so a single strategy can address all pieces as a group. Tactical Aircraft (TACAIR) is examined in this paper since it represents decisive military power and high technology products from an

advanced national industrial base. TACAIR should not be considered collectively. I divide fixed-wing tactical aircraft into four sectors: stealth, conventional military, militarized commercial, and quick-reaction missions. Distinct technologies, varied quantities, military-unique versus commercial commonality, etc. are some of the factors that dictate *different* plans tailored for these *different* types of planes. Definition of mission, support from government arsenal versus industry, avionics and service-life upgrades, design requirements, etc. are examples of support strategy considerations.

II. DEPICTING U.S. FORCE DEVELOPMENT IN A COMPETITIVE WORLD

> The world and America's place in it have changed radically. Today, America's sworn enemy, communism, is defeated. For years, opposition to communism gave American leadership a sense of national purpose.[7]

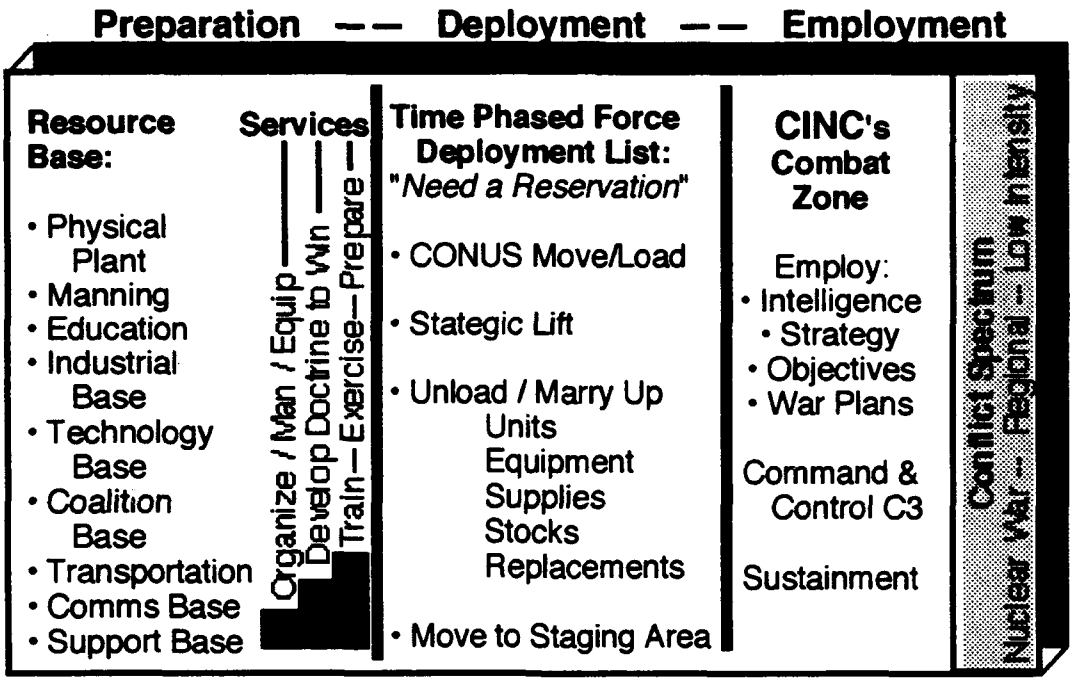
Reconstituting military forces—in a "safeguard" strategy—is a world-wide competition in time. Internally, we selectively and efficiently prepare. Externally, we compete with tactics that may include cooperation or "hobbling" potential competitors. However, the reconstitution competition is not a simple military versus military race. It's the US' system vs. other nations' systems. Competition is fundamental with military, economic, political, and social dimensions waged simultaneously against many competitors.

This section develops my notion of a competitive world framework. First the military system is diagrammed as a building block of national power (Fig 1). The notion of a flow model is extended to all four elements and combined as a national system of resource inputs and power block outputs (Fig 2). Then, the US national system is depicted in a global framework with strategy developed under uncertainty and tested in competitive arenas (Figure 3). Feedback and system adjustments re-emphasize the notion that no fixed, permanent solution is recommended; it's dynamic.

Elements of National Power.

Figure 1 (on following page) depicts one element of our national power—the military system. This adaptation from the Army War College[8] views the development of military power as a left-to-right flow. Our nation provides resources from the base on the left hand side which are shaped — organized, trained, and exercised — to fight and win. Forces are employed by the theater commander-in-chief (CINC). The conflict spectrum on the right hand side shows the different scenarios requiring military forces. In time of conflict, the CINC sets the order of battle. Troops, required by his warplan, are moved; thus, strategic deployment is marked "need a reservation." Resources move from left-to-right in this flow model, from development to use. It represents a *pull* system with the CINC as the *customer*.

Figure 1. THE US MILITARY WARFIGHTING SYSTEM:

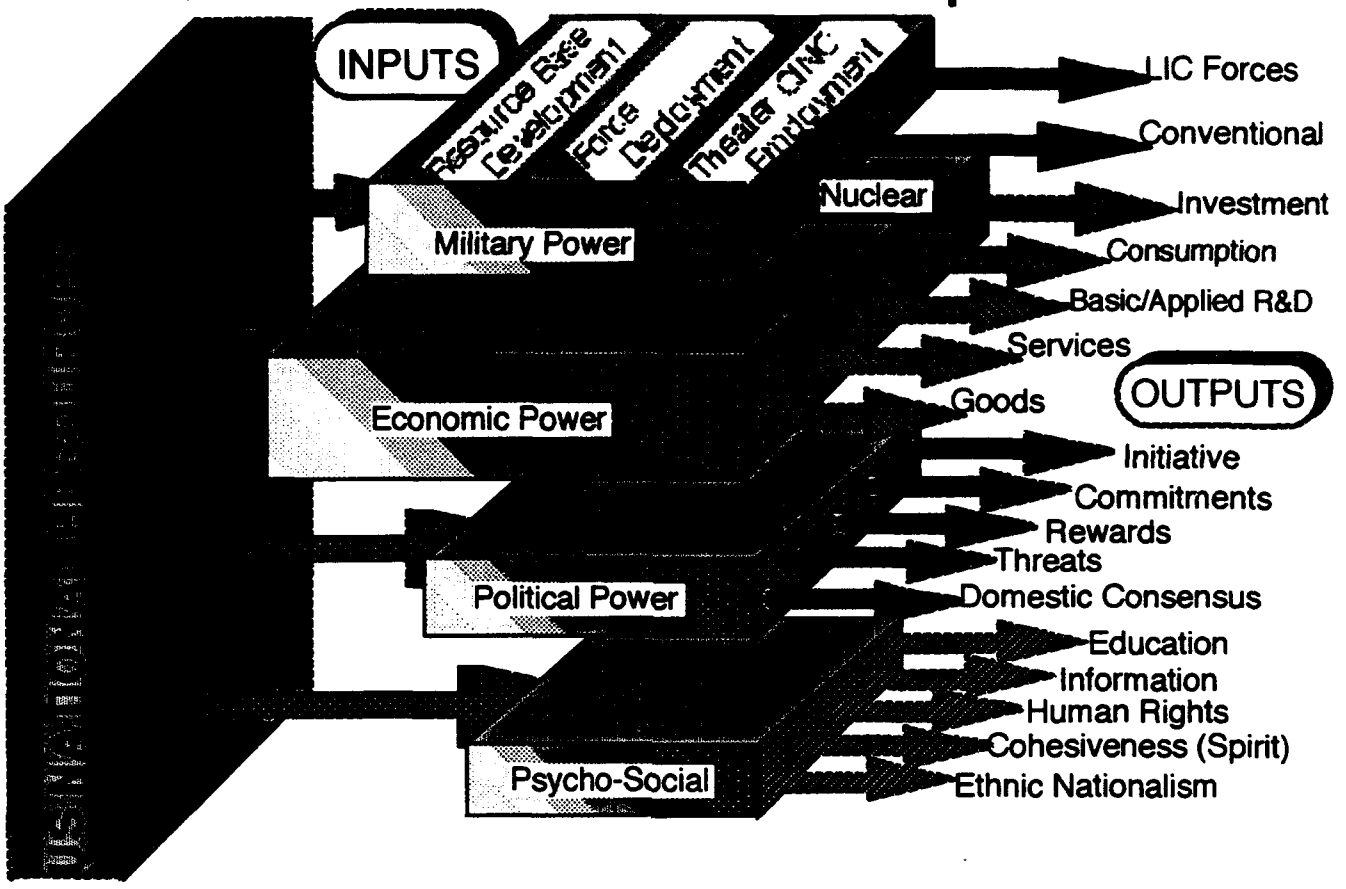


This block approach for military power would be similar for the other elements of national power: economic, political, and psycho-social (see figure 2). Just as this military model has a *flow* from resource input, to preparation, movement, and employment; the development of an *economic* product is similar. An economic power block would also show a left-to-right flow of supplies from manufacture—assembly—transportation—distribution—marketing to *customer.*

Thus power blocks can represent the different elements of national power, but they must be able to be *combined* for a national strategy. To accomplish this, outputs from each of the power blocks are identified. The *sum total* represents a national output. The makeup of outputs from each power block makes it easier to see which elements we wish to emphasize and therefore, adjust our resource allocation decisions. Our safeguard strategy attempts to synergistically combine our force elements and selectively target other nation's power blocks.

In Figure 2, US national resources are allocated as inputs to the four power development blocks. Note the different block sizes; they are proportionately sized. In my opinion, the US economic component is dominant; the military is next. Notice that the block sizing I have depicted is considered appropriate for competitive reconstitution. Although I have depicted the output arrows' size as approximately the same, they could also be sized

Figure 2. U.S. Power Development System For International Competition



proportionately. In the military system, the conventional forces would be the largest output arrow. On the economics block, national *consumption* would far exceed *investment.*

The allocation of resources, sizes of power blocks, and selection and relative sizing of outputs are national decisions. Sudden, dramatic change is unlikely to be efficient. Part of our strategy will be *how to adjust* the output sizes to be more effective in international competition. The draw of national resources from a single block and the closely stacked grouping of power blocks is intended to represent sharing and interfaces *within* our national system. A strong industrial base, a vibrant economy, and manageable debt are fundamental to military force regeneration capability.[9] Economic power is just as essential for influencing international relations. The purpose here is to depict a *national power system*; it becomes one competitor in the global competitive framework in Figure 3.

Worldwide Competitive Framework Diagram.

The figure 3 diagram, on the following page, continues the notion of *power flow* throughout the international system. From left-to-right, *world* resources are allocated to individual nation's power development blocks. National aims are advanced and

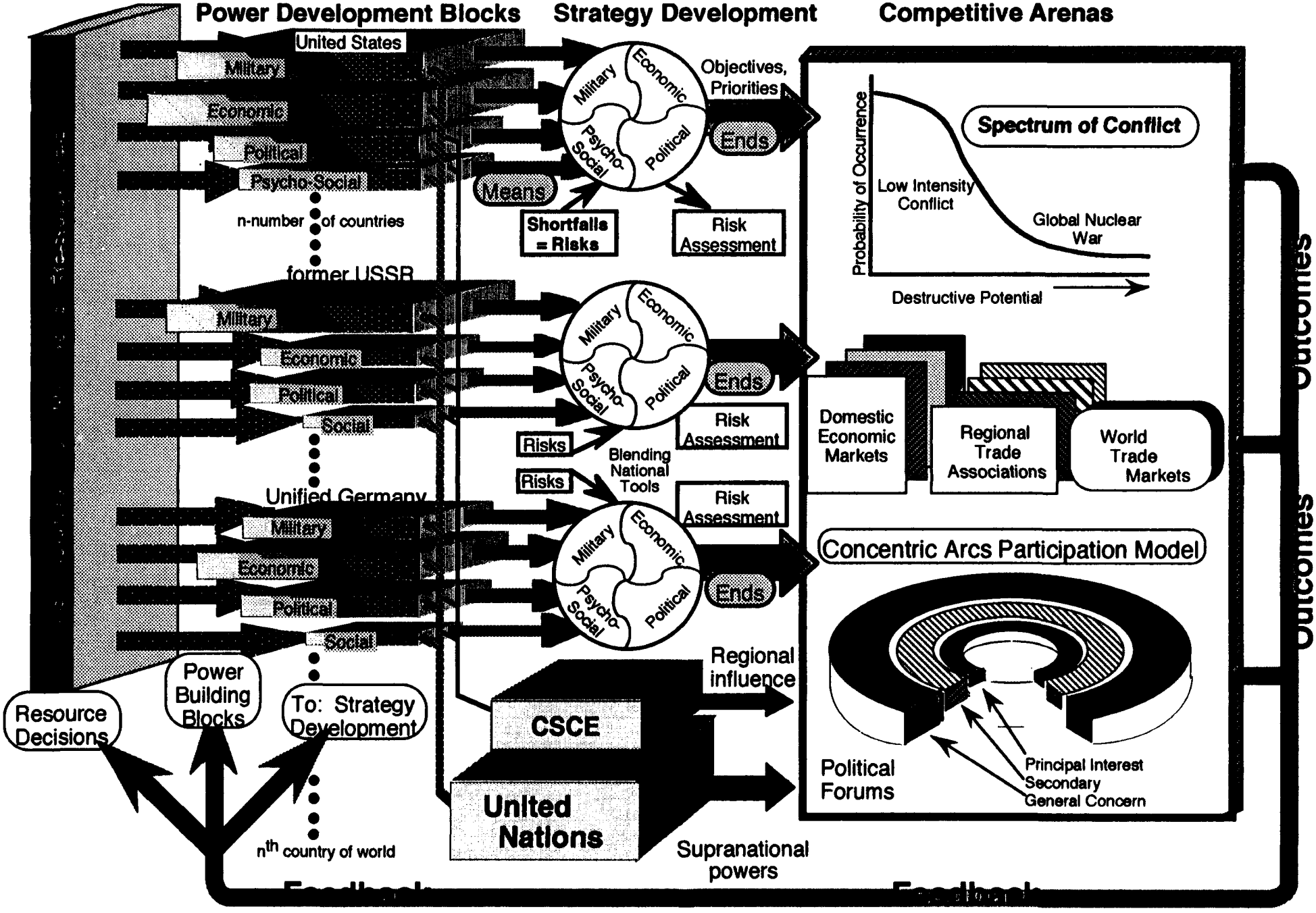


Figure 3. Competitive Framework Diagram.

Resource Allocations — Power Development — Combining Strategies — Competitive Arenas — Feedback

competitive strategies developed to accomplish those ends. National power outputs are also directed to regional and supranational organizations. Then, nations' strategies are simultaneously tested in competitive arenas—military, economic, and political fora. It's a stochastic process—a technical term meaning input variables and relative advantages may change or adapt before each competition—it's probabilistic. A feedback loop is included to connote this adaptive process cycle. The competitive outcomes are fed back and can be used to influence tomorrow's resource decisions, to reshape the national power building blocks and relative importance, and to adjust the national strategy and related risk. Key features of the model follow.

Strategy Development. The national and international strategy circle with interlocking pieces represents a combination of the four power elements. The block outputs depicted in Figure 2 become the *means* of our strategy. This is an objective driven process—not a means-driven strategy. The model explicitly recognizes *risk* as a shortfall of means and *risk assessment* as a realization of the probabilistic nature of competition. A good strategy may lead to good outcomes 70% of the time—yet sometimes fail (unlucky). With luck, even a bad strategy may "win" 30% of the time. Therefore, a good outcome doesn't necessarily reflect sound strategy. Strategies should be judged at the time of the decision, not solely on the outcome.

The Battle of Britain, during W.W.II, was a heroic air campaign. But it was too risky; the consequences of failure too severe; the means were insufficient to meet the ends—yet the British won. The risk assessment is our estimate of how well our strategy will work. Losing when you're confident of victory is a more severe situation than losing in a high risk proposition. Win or lose—considering the risk of the input strategy is essential to assessing outcomes and making adjustments. Our overwhelming Desert Storm victory has overshadowed our prudent evaluation of risk during the Desert Shield buildup. Strategy development requires a continuous feedback, risk appraisal, and resource assessment.

Power Development Blocks. The national power system developed in Figure 2 is replicated but without specifying itemized national outputs. Due to space limitations, I included the United States, a fading former USSR, and a growing German power. Actually, it is an n-dimensional problem (where n=the number of nations) stacked like a deck of cards. Note the relative size of the power blocks. Blocks were sized according to relative importance within each nation and in comparison to the US. Military dominates the former USSR and economic power prevails in Germany. Each nation must draw from the world's resources. An element of *World's Resources* includes the environmental concerns with such diverse areas as: limited resources, waste, and collective responsibility. The world resources block connotes a *finite* notion from which all countries must draw. The small US

population (5% of the world) drawing such a large proportion of world resources (25%) raises a question of equity and perhaps a long-term source of world instability and competitive threat—all against *number one.*

Multi-national Entities. The powers of regional and supranational organizations are drawn from the members' national powers. They serve our strategy insofar as they *diffuse* power. Hopefully, members will: (1) feel reduced threat; (2) trust in the collective capabilities; and (3) contribute resources rather than marshaling them. The UN is only as good as we make it. For example, with the Russians not vetoing every Western initiative, the UN can now serve as a more effective world force. Part of our safeguard strategy is to build confidence in the UN so nations will not build individual capabilities that could become threatening to our interests. At the regional level, the pluralistic CSCE (Conference of Security and Cooperation in Europe) can also serve our purpose. A deliberative CSCE structure could mitigate irrational surges in member's war fighting system/operation. Our democracy requires considerable time for consensus building prior to force employment; we should wish them the same delays. Complicating their political decision making may be frustrating when we want assistance in crises but may also preclude a near-term offensive threat—providing us reconstitution time.

Competitive Arenas. The resourced national strategies are tested in competitive arenas: military, economic, and political forums. Outcomes of one arena may affect another; this is represented by the competitive arena border which surrounds rather than separates. Each arena connotes different power segments: representations of the military spectrum of conflict and economic markets are commonly understood. The *concentric arcs participation model* as a political stage was suggested by Prof. Robert Scalapino.[10] Depicting three separate tables suggests different levels of participation for us—depending on our purpose. In the Camp David Accords, we were central to the Egyptian-Israeli peace process and we are paying more than $3 billion annually to each. In my opinion, we can't ***afford*** that political strategy. Today, Israel and Syria are again at the center table; but we are in the second tier, and we're not bankrolling the outcome. The concentric arcs construct can be applied to sub-regional security structures or world forums. It suggests flexibility in our involvement; a choice about our involvement, role, level of resources, and expectied/desired outcomes..

Feedback Loop. Outcomes from the competition serve as feedback to modify national strategies. *Management by fact* should drive decision making. Planning future resource allocations, adjusting and prioritizing the national power building blocks, and evaluating how well a strategy worked and may work again are decision elements. Also, risk

assessments are feedback elements. What will our competitors do in the next frame? Should our shortfalls be addressed now? Can safety margins be reduced? Chance exists. We are managing risk. For example, the US reconstitution strategy must be shaped so that national power is maximized for global competitiveness while we are "between war." US strategy must evaluate feedback, resource requirements, expected warning time, risks, and required results/desired outcomes.

Utility of the Competitive Framework. This global framework is intended to visualize the notion of military reconstitution as part of a competition of national systems—winning is a relative matter. This notion is an extension of the Soviet "correlation of forces" concept competing against more countries and with cooperation (not veto power) in international organizations. Unique model features are emphasized to support my defense fusion strategy:

- *Risk.* This signifies that the strategy is ends-driven and that we have shortfalls—both known and unknown. The risk assessment estimates chances of success.
- *Probabilistic.* Even the best strategy does not guarantee a win. Risk strategies should be judged good or bad at the time of decision, not solely on the outcome. Chance exists.
- *Segmented competing arenas.* We want to shape our forces and influence our competitors so that we win in certain segments. Our "hobbling" strategy will be applied selectively.
- *Surrender of powers (even elements of sovereignty) to multi-national organizations.* These institutions can promote our foreign policy goals and can sap (diffuse) power from peer competitors.
- *Feedback system.* There is no fixed, permanent solution. Each national system has an opportunity to improve strategy and resource allocation for better results next round.

Shortfalls. One chart cannot be all inclusive. In figure 3, I have not incorporated two key features of the international situation—ad hoc alliances and transitory causes:

- multinational companies in a global enterprise web (depicted in Fig 7) share government and corporate resources. These cause global interdependency and loss of national control. Foreign investment and capital flows, technology diffusion, etc. entwine members.
- international spirit—such as humanitarian aid for Somalia, or disgust with the genocide in Bosnia—transcend regional groupings.

They were not included since the inclusion of members is ad hoc and the nature of commitment to international causes is temporal. I could not accurately represent the intermittent nature. Never-the-less, they must be considered in fused strategy discussions.

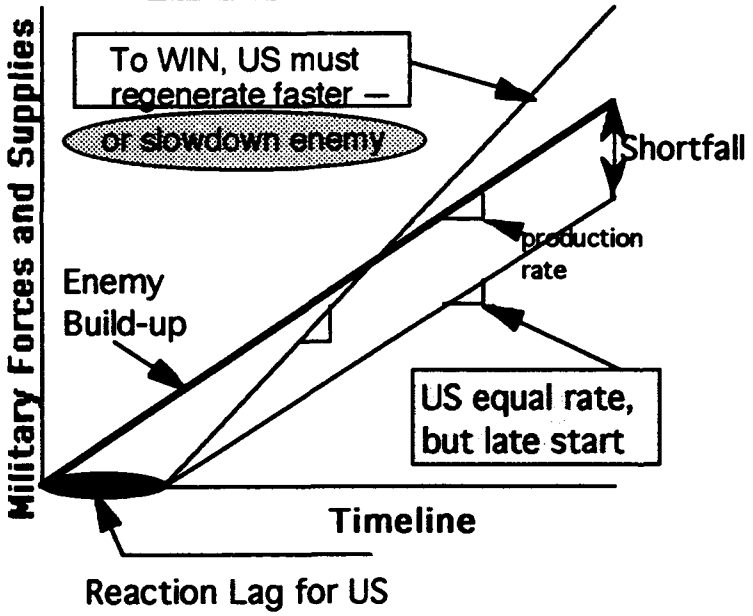
III. The Evolution of Current Reconstitution Strategy

The term "Reconstitution" is not well understood. Since President Bush introduced the phrase in a speech before the Aspen Institute, reconstitution has been applied differently as the world order has changed. I contend that there have been *three interpretations* to date and I propose a fourth definition to allow an international dimension to our "contest." This fourth concept adopts some elements of the first three strategies but adds internal and external tactics plus the realities of an austere budget. I'll discuss the four reconstitution concepts in the order they evolved.

1. Force Reconstitution—A *hedge* for Conventional Arms Control.

> Our strategy will guard against a major reversal in Soviet intentions by incorporating into our planning the concept of reconstitution of our forces...[11]

Figure 4. **RECONSTITUTION COMPETITION**



I suggest that this first concept of reconstitution was to rebuild our forces to the necessary (winning) strength if the Soviet Union reneged on their promise to drawdown conventional forces negotiated in the CFE (Conventional Forces in Europe) Treaty. The phrase "reconstitute" implies—*put it back the way it was before* —in this case, our 1980's global armies. There is a distinction between *reconstitution* and *regeneration* . Reconstitution is building entirely new units—new platforms and training people. Regeneration connotes provisioning of wartime consumables (e.g. bullets) and recalling trained people.[12] Reconstitution is supposed to provide armed forces over and above the Base Force in response to a warning of a competitor's military build-up. We would transition from commercial production (butter) to manufacturing military end items (guns) relying on flexible, robust basic industries. However, it's not all or none; we need ***both guns and butter*** to fight wars.

The reconstitution "race" is pictured in Figure 4. *Warning time* and *production rate* capacity are critical elements. The reaction lag connotes that democracies are at a decided disadvantage in the race. We need to plan ahead. Industrial mobilization entails

substantial government intervention in economic decision making. Governments must have the authority to intervene. Democratic governments are at a disadvantage compared to *command economies* since there must be debate and political consensus building before a decision to grant such extraordinary powers.[13] Meanwhile, our competitor from this era—the Soviet Union— is past the decision-making and into well force preparation.

Warning time. In the Cold War we were poised for a sudden attack; warning time for a global war would be minimal. In contrast, the current notion of reconstitution relies on longer warning times. A massive violation of the arms control accord would be visible from national intelligence means and enemy intents inferred from political actions. There is now a difference between *political* warning time to start the rebuilding race and *military* warning time which remains a trigger to fight with the forces at hand. However, one can expect that the enemy will obscure his build-up as long as possible. As a result, early warning indicators may be ambiguous (one source of risk in our strategic planning). How much clear evidence of enemy build-up would it take to prompt domestic industry conversion? How much lag time would elapse? How do we hedge against the risk? A minimum standing military force may have to resort to our nuclear umbrella. Our current strategy of **decisive force** to win with minimum casualties requires massive build-up. How do we deter enemy action in this build-up time?

Production Rate. Once a political decision to mobilize is made, our productive performance rate must exceed the enemy's. Enormous economic controls would be required such as: production programming; controls over the use of manpower, facilities, and materials; stabilization controls, procurement controls, etc.[14] What rate is necessary? Leonard Sullivan suggests that our current military industrial base is sized to "roll over" equipment inventories about once in every 30 years.[15] Peacetime production replaces 3-4% of military inventory annually.[16] The average age of our weapon systems support these estimates. To meet wartime consumption, industry output would have to grow 10- to 50-fold within five years to reconstitute US forces and Allied needs.[17] This awesome requirement may seem do-able with open F-15, F-16, and F/A-18 production lines. What's the prospect for open production lines in 5 to 7 years? (I estimate—at most—one, open fighter line at low-rate production).

Act Defensively. Since it would seem impossible to quickly reconstitute our Cold War offensive posture, we would initially have to act defensively Our force structure would be *asymmetric* —not balanced or proportional—to our enemy's. Our initial force build-up would emphasize force multipliers: quality over quantity, both in training and weaponry. Is this

a pessimistic conclusion to an exaggerated production requirement? Consider the following statement from the 1991 National Security Strategy regarding reconstitution:

> We and our allies must be able to reconstitute a credible defense faster than any potential opponent can generate an overwhelming offense.[18]

Act Politically. Please note that Figure 4 graphically demonstrates that to "win" in reconstitution competition we must have a higher production rate *or slowdown the enemy* . Mr. Joe Muckerman, recently retired as the OSD Director of the Office of Emergency Preparedness, noted:

- ...it may not be physically possible for the United States to manufacture everything we may need to prosecute a major conventional war.
- Any shortcomings or delays on the Soviet side would have a positive effect for us in reducing any relative (consensus-building/free market) US disadvantage.[19]

By supporting Gorbachev and Yeltsin in their political and economic reforms, we effectively emphasized Muckerman's second point. By encouraging political pluralism instead of the Communist monolith and by helping free market initiatives, instead of the command economy, Soviet decision-making to reconstitute was complicated. *It slows them down.* This is a good example of a combined political—economic—psycho-social "fusion" strategy achieving *relative* military advantage! We must **fuse** power elements for national power!

2. Reconstitution as an Investment Strategy.

When the Soviet Union's national power collapsed—not from negotiated arms control— but from a collapsed economy, reconstitution was recast from one foe to global competition in a dangerous world. We discussed that it would be nearly impossible to increase peacetime production rates 50-fold. However, lesser enemies would not require such an enormous effort. The answer is Graduated Military Response (GMR)—offering earlier, lower cost investment opportunities in rebuilding military potential that could be staged to avoid crisis management and a more costly, panic surge. GMR suggests *selective* resource mobilization involving only those agencies, industries, and resources required for the particular crisis.[20] By tailoring the response, there would be less interference with the civil sector. The notion of escalating mobilization levels already exists:

- **Selective** Mobilization: Mobilizing reserves for domestic emergency.
- **Partial** Mobilization: Activating up to 1 million reserves for 24 months. Surge production meaning adding extra shifts to accelerate existing contracts..
- **Full** Mobilization: Mobilizing all the reserve units, individuals, and support resources.
- **Total** Mobilization: Expanding force structure and acquiring necessary resources.[21]

Reconstitution corresponds to Total Mobilization: new forces to counter a global threat.

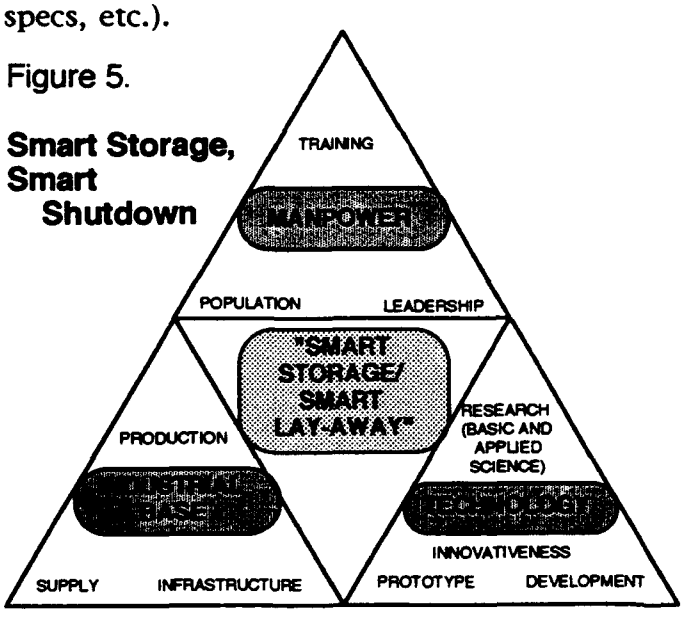
Why didn't these mobilization notions work previously? *Nifty Nugget* was a mobilization exercise based on the Cold War Soviet threat. The scenario attempted to rapidly build up conventional forces supporting our strategy of Flexible Response before resorting to nuclear weapons. According to Mr. Muckerman, then in OSD, the delayed mobilization response was too late to make much difference in the war; the exercise was a failure.[22] Why didn't we react and try to fix the shortfalls? Didn't it matter?

Our Cold War strategy was based on nuclear deterrence with flexible response conventional forces. The *old* four pillars of military strength were: (1) force structure, (2) modernization, (3) readiness, and (4) sustainability. Deterrence rests on the first three elements: quality, well-oiled, standing forces. Mobilization (sustainability) suffered. If deterrence failed, we'd be immediately engaged conventionally —10 divisions to Europe in 10 days—or, resort to nuclear weapons. Again, mobilization didn't make much sense in these short war scenarios; we couldn't expand the industrial base and other mobility elements with sufficient output in time. Developing long term capabilities for a *hair-trigger* fight makes little sense. However, assuming a long warning time, mobilization deserves merit.

Today's Actions: Investment and Competent Administrative Planning. Today, we seem to be looking for ***low-cost*** ways to: *maintain* a strategic stockpile; smartly *lay-away* long-lead items; *store* weapon systems necessary for future conflict; and smartly *shutdown* current TACAIR production lines (tooling, test equipment, tech data, process specs, etc.).

Figure 5.

Smart Storage, Smart Shutdown



The concept of smart lay-away is depicted in Figure 5. The triangle properly maintains a strong scientific and technology (S&T) program as a foundation for force expansion. Has this scheme ever worked? The book AERIAL ESPIONAGE reports that the TR-1 battlefield reconnaissance and SR-71 strategic recce programs faced such a cycle. The authors state extra birds were built (test planes and attrition reserves); production lines were shutdown; aircraft were rotated through storage to prolong airframe life; and strong R&D programs successively updated the sensors and aircraft interface.[23] I acknowledge the small recce fleet sizes are not representative of our TACAIR fleet, but astute management actions kept two avionics/airframe systems at the forefront of technology and aerodynamic performance.

Administrative Competence—Federal Emergency Management Agency (FEMA). The *National Security Resources Board* (NSRB) was the federal agency charged with mobilization readiness during the Korean War. It has since been replaced with FEMA charged with mobilization readiness , natural disaster, and technological (e.g. Chernobyl) emergency preparedness.[24] Klaus Knorr described the "war potential" of nations on the basis of "three broad categories: economic capacity, *administrative competence* , and motivation for war."[25]

I question whether we have given FEMA the resources and authority necessary to perform the job that the NSRB couldn't. The slow response to Hurricane Andrew has been attributed to uncertainty over state vs. national funding responsibilities. Although the military mobilization for Desert Shield did not seriously disrupt the civil economy (an efficiency measure of mobilization), we had a large standing army to draw from— only one-fourth of it was used. I contend Desert Storm wasn't a comprehensive test of coordination, allocation of resources, and industrial productivity among the military, war production, and essential civilian needs.[26]

This year's tabletop mobilization exercise, *Prime Directive,* has been delayed until the new Administration is in place. Do these exercises have an operations security plan? Security is not mentioned in the GMR Stage 3 planning and preparation phase. Are coalition partners adequately addressed? They bring requirements and capabilities to the fray. One suspects there is (1) a reluctance to do a comprehensive Industrial Base analysis, and (2) a holdover of the "Fortress America" mindset.[27] My perception is that we place a "logic of confidence" on FEMA where we entrust them with an extremely difficult job and intentionally **don't assess their ability** to execute. A corrective action follow-up would implicitly call for more Administration attention—and more funds. Thus, I think the *benign neglect* is intentional. Credible exercises must soberly assess our capacity to respond, must consider the consequences of shortfalls (in terms of time, strategy, and potential lives lost), and offer options to preclude unpreparedness.

Should we care more about mobilization? We are sizing our standing forces for nuclear deterrence and ability to simultaneously fight two major regional contingencies (MRCs). Is 'two' overstating requirements? In my opinion, we could be engaged in a regional conflict, a long-term commitment for a humanitarian/UN mission, and endure a natural Stateside disaster (civil unrest/act of God/technological phenomena). Do we want to invite adventurism while we're tied down? For example, could North Korea pick a better time to move south than when we're pre-occupied? In this context, I think sizing for two MRCs makes sense.

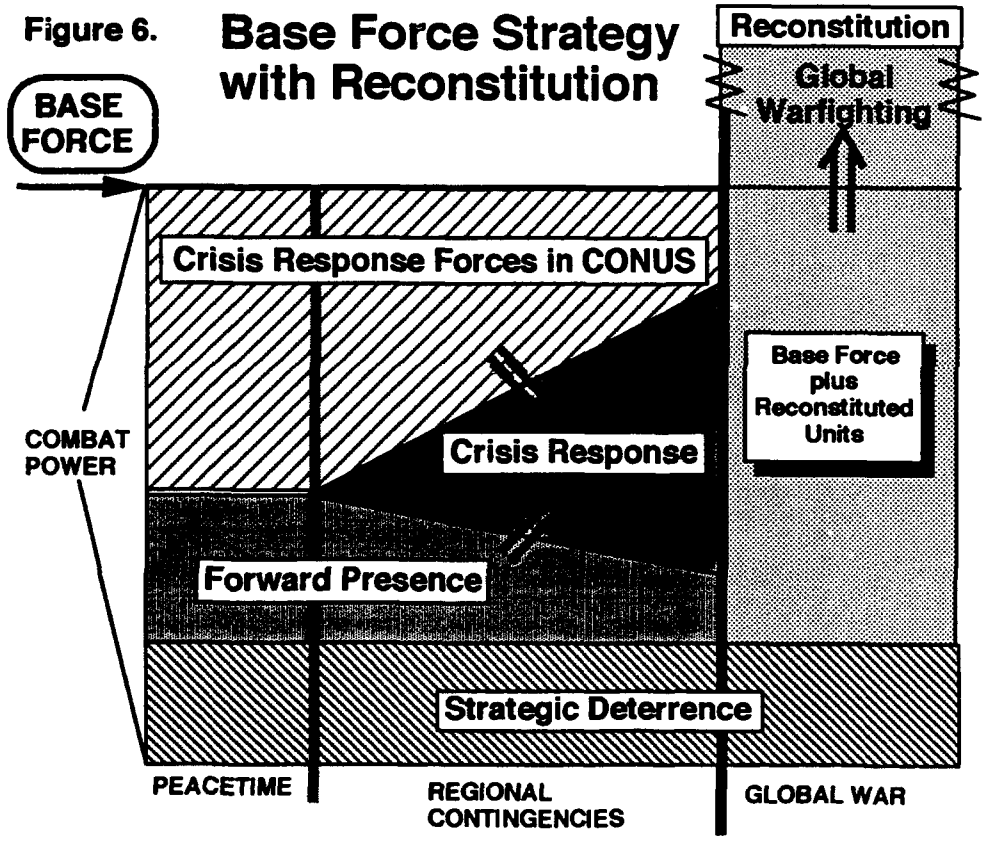
Regional contingencies will be "come as you are" conflicts with CONUS expeditionary forces dispatched to the conflict area.[28] Reconstitution will be more concerned with replacing losses than expediting support. Unlike the "domino effect" paradigm of the Cold War, our national survival is not at stake in regional contingencies. It does not necessarily connote a prelude to global war. In Desert Storm, Russian *cooperated* by not exercising its UN Security Council veto when military sanctions were levied against Iraq.

Currently, we don't see a global threat. Therefore, we are looking for **near-term, low-cost** initiatives for efficiency in maintaining a current capability as we drawdown. Testing mobilization planning may not seem to make much sense now when we expect the industrial base to radically and rapidly restructure. On the contrary, I think it is more essential now to know our weaknesses so we can downsize smartly and avoid a "hollow force" from the sustainability perspective!

3. The Base Force — A Downsizing "Glide Slope" Strategy.

The US cannot afford large-scale military preparedness without a convincing and imminent threat. We scaled our forces to the largest threat—the Soviets. Breakthroughs in arms control agreements and the breakup of the Warsaw Pact compel us to downsize. Our history of downsizing after W.W.I, W.W.II, Korea, and Vietnam is a legacy of unpreparedness for the inevitable next conflict. JCS Chairman, General Colin Powell summed up this fear:

Figure 6. **Base Force Strategy with Reconstitution**



> Every time we've brought down the size of the military in the past—after a crisis had passed—we've fouled it up...We've cut too far, too fast, and in the wrong places... and wound up later paying a terrible price for our shortsightedness...a price that was all too often paid in blood.[29]

Figure 6 , Base Force Strategy, is taken from the 1992 National Military Strategy. It emphasizes a continuing strategic deterrence base and how standing peacetime forces, at home and abroad, contribute to resolving crises across the spectrum of conflict—short of global war. But the focus of this paper is on reconstitution—rebuilding for global war. According to the depicted strategy, reconstitution is triggered by the *failure* of deterrence; it's a step or trigger function. The Base Force does not build up—**at all**—until conflict reaches global proportions. Taken literally, this returns to the Cold War notion that there is no effective political warning time, so reconstitution is a reactionary response. Long term planning is eschewed for short term crisis response capability. I honestly do not think that's the plan nor the intent.

A Holding Action. The capabilities-based force concept is designed to control the ***rate*** of drawdown. We are trying to retain sufficient forces until: (1) the Russian force drawdown is evident; (2) our new peace-time mission responsibilities are clear; (3) the future of NATO and allied contributions are settled; and (4) a half-million military members can be gradually—involuntarily—separated in a recessionary economy. The capabilities-based concept was meant to deal with the world in transition, maintain quality in the remaining forces ("No more Task Force Smiths"), and to restructure the active/reserve mix for an expandable force. We can expect an asymmetric drawdown with all services downsizing but taking proportionately more from conventional ground forces. In my opinion, the focus is ***not*** on reconstitution, rebuild capability; the priority is slowing down precipitous decline.

Base Force as the 'Initial Protective Force.' The base force is the floor from which we reconstitute. It is proper to control the downward "glide slope" during this transition time and demonstrate military authority—or else, it invites adventurism. My theme is to consider the *external* consequence/reactions to our *internal* strategies. ***The world is deciding whether to compete with us or cooperate with us.*** We should seek better access agreements and urge shared functions rather than going it alone. We must reconsider the Figure 6 "step" function approach to reconstitution and address sustainment of forces. Operations plans need to address sustainment with the realization that in regional conflicts, foreign sources away from the fray will remain available. The contents of the strategic stockpile also need to be reassessed for today's requirements and appropriately downsized.

Although we postulate it would take seven years for a rival of equivalent power to emerge; when does the clock start? If we declared a national emergency to reconstitute, would the declaration be inflammatory?[30] Could there be a *precautionary act* to authorize a gradual force build-up? In short, the Base Force serves as a transition scheme, but does not address

the long term force structure, the force generation capabilities of the industrial base, administrative competence to expand forces, or sharing requirements and capabilities with ad hoc coalitions. 'Base Force' addresses short-term budgets more than long-term strategy!

4. Adjusting Reconstitution Strategy for an International Dimension.

This section details how reconstitution strategy would be affected by considering international competition (from Figure 3) as our world framework. With the perspective of reconstitution as a *competition in time* for rebuilding global forces, I suggest seven adjustments to current reconstitution strategic thinking:

1. ***Reconstitution is a relative matter.*** We don't have to move 10 divisions in 10 days or face global extinction. It's all right to take 5-7 years to reconstitute forces provided it takes a potential enemy longer. Our problem is to ***detect*** his start time and ***decide*** to take precautionary measures at once. While internally improving our cycle time — complicating adversary's political decision-making process; becoming economically interdependent; and sapping or co-opting his military forces (competitor becomes militarily dependent) — all work to our benefit.

2. ***Complete self-sufficiency is unrealistic.*** Under Cold War assumptions, if war broke out virtually every major economic power would be involved. We could not count on any foreign source—of course enemies would deny us resources, but allies would be surging as well. If we continue with that mindset today, our only available response would be to go defensive—develop asymmetric forces against the enemy's offense. Sullivan's rationale was convincing — that we couldn't increase our peacetime rates 50-fold in five years. However, *with coalition allies*, we could emphasize each country's comparative advantage and perhaps build a different (more offensive) force structure. Off-shore sourcing is essential for efficiency. Borrowing from Theodore Moran's "4/50" rule, if the market has four or more firms controlling less than 50% of the market (and they're geographically separated) we shouldn't object to off-shore sourcing.[31] A regional conflict should not deny access to defense goods provided the sources are sufficiently dispersed.

Our foreign dependency mindset must be tempered. Multi-national companies and virtual corporations in project partnerships already transcend national borders. We should attempt to *maintain the complex* (high value added, technological "killing" processes) *activities within our borders* to the maximum extent—even if it's a subsidiary of a foreign multi-national. Failing that, we should not let *all* the complex nodes fall in the hands of a potential adversary. For us, that dependency should trigger re-establishing a (redundant) critical capability—perhaps a nationalized US industry, most easily attached to an arsenal.

Figure 7. Notional Global Network with 3 Countries Participating.

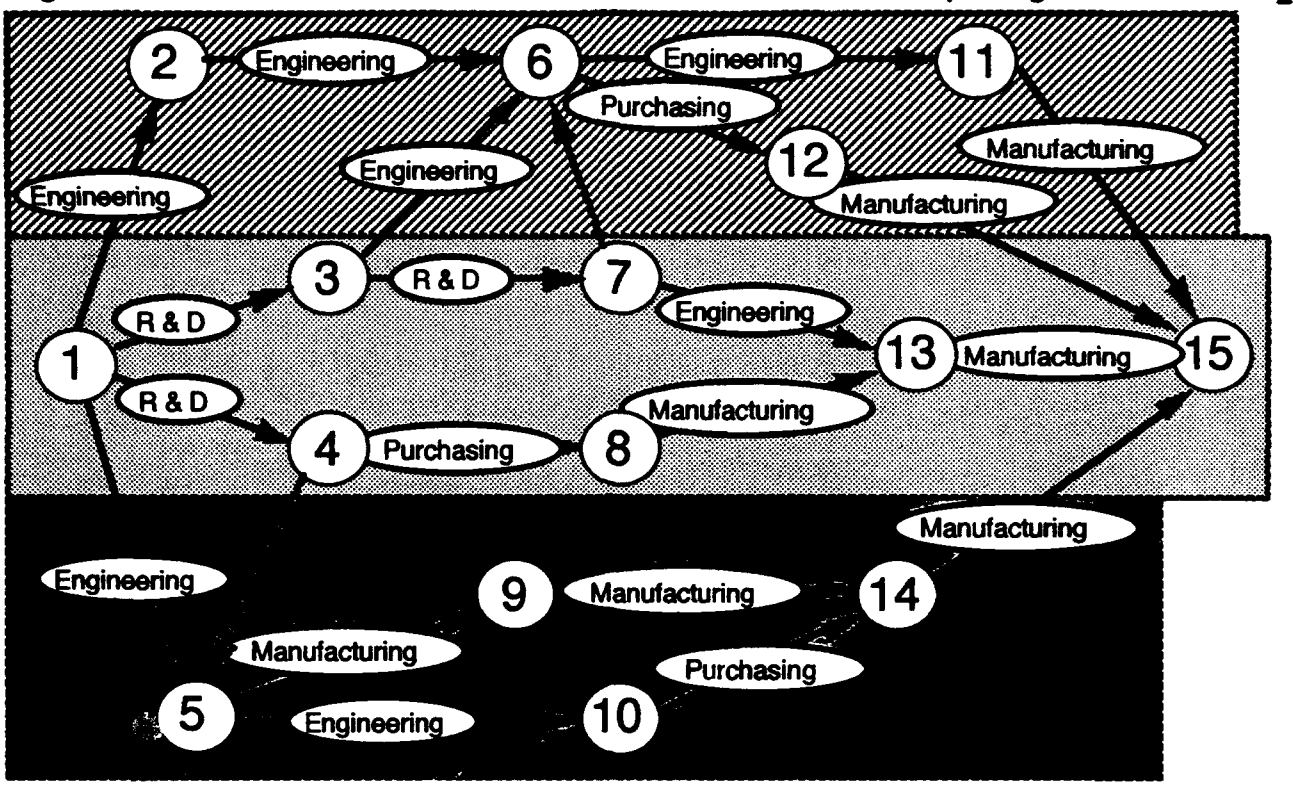


Figure 7 depicts a notional global web illustrating the strategy of maintaining the complex activities in national borders and an interdependence in process. In this example, the US would maintain the center section of activities with the complex R&D tasks and a controlling influence on others' efforts illustrated by the dependence relationship between nodes (4 to 5) and (7 to 6).

3. ***7 years to reconstitute is not a static figure.*** I could not find a solid basis for '7' as the time requirement for a global rival of equivalent power to emerge. In W.W.II, Germany required 1933-39 to initiate conflict and the US used 1936-41 for war preparation. Realize Germany's military potential had been capped by W.W.I Treaty and the US had no defense industrial base. The Reagan buildup was essentially reconstitution—building new forces—and it took 7+ years. But the quantities and technologies were vastly different.

Given our currently strong base, by the end of 1997 estimates are it would take two to four years to restore production capability to 1990 levels for items whose lines have gone "cold."[32] While I believe that's understated, when would Sullivan's 10- to 50-fold production rate increase occur? What will be the comeback capability in 2010? With our solid industrial base, it's taking 10-15 years to develop new weapon systems. Our current armaments inventory should reach their life expectancy around 2015, about 30 years after the Reagan buildup. We'll have to replace, not build more. I caution that the rebuild time is stochastic (probabilistic); it is variable after each cycle iteration of the international

competition depicted in Figure 3. My point is ***7 years' warning may not be sufficient 10 years from now.***

4. ***Forecasting that far ahead is nearly impossible.*** When should we start rebuilding a manufacturing base and state requirements for quality and quantity of weapons? We don't know who, when, or where we'll be fighting. It's a trick question. We are presuming a line-assembly, mass production method of manufacture. Strategic theory tells us that it does not matter how uncertain the environment we live in is, *provided we can react quickly enough to any changes* .[33]

We need fast, flexible manufacturing processes. Rather than laying up a lifetime supply of spares before a line closes down, we should have computerized manufacturing instructions to produce investment spares as needed. WRSK (War Readiness Spares Kit) could be drastically reduced if computerized tooling could produce spares onsite. This notion coincides with ideas of virtual companies assembled "just in time" in product alliances and electronic factory networks using CATIA or ISOGRAPHICS design tools for interoperability. However, to match the pace of flexible enterprises, the government needs a neural network — an intelligent information structure — to tie in to the agile, commercial market.

Reconstitution must emphasize producibility. Funding for improved manufacturing technology (MANTECH) and production process productivity (IMIP—Improved Modernization Incentives Program) benefits both military preparedness and industrial competitiveness. Industrial conversion should emphasize flexibility so industry can re-convert to producing military goods. We want a ***convertible*** "militia" industrial base. We also want *scale.* We currently have examples of machines that can produce *anything.* The relevant question is: Could they produce *everything*? No. Advanced manufacturing is rare, the parts are not coded, and codes aren't standardized. For example, only one-third of the Boeing 767 components were designed with the help of a computer, and about 5% of the B-767 design went straight from computer-aided design into numerically controlled machining.[34] The computer-aided design and manufacturing (CAD/CAM) formats should meet *commercial* standards (e.g. CATIA format) so the product is producible by several commercial companies.

5. ***The ability to reconstitute should affect downsizing decisions.*** The Tactical Air Forces are not readily reconstitutable. It takes years to develop the individual skills necessary for the technological intensive aircraft. It takes even more years to develop connections (operational doctrine) between constituent force elements. For example,

fratricide will remain a problem both in weapons delivery and when returning home through our air defenses. TACAIR is not easily expanded.

The "Nixon Doctrine" emphasized the *US providing the complex* force elements—C3, air, and sea forces—while the assisted nation provided the *simpler* conventional land armies.[35] That notion is consistent with the idea of America retaining the complex task elements and allowing other nations to do the more common, labor-intensive jobs. This should be the basis of sharing commerce, co-production, and joint forces. We should retain the complex military/industrial functions and retain the force structure that takes longer to reconstitute and has decisive military impact.

In W.W.II, we built Liberty ships quicker than Nazi submarines could sink them. We could reconstitute shipbuilding quicker than anti-submarine warfare. What was the cost of this unpreparedness for war fighting? Unless we retain these decisive military functions, we will have to resort to: (1) ignoring predators to our external interests; (2) relying on allies—losing our unilateral capability; or (3) employing nuclear weapons defensively.

In the Cold War we scaled our forces and weapons to meet the largest threat. We built heavy weapons and prepositioned them in Europe. We assumed these weapons would exceed the requirements of a lesser conflict. As we change our strategy to depend upon an Expeditionary Force, we will resize weapons for mobility and effectiveness in the lower spectrum of conflict. Today's forces are transferable down; tomorrow's may not be transferable up!

6. ***The size and composition of the Base Force should not be static.*** The Base Force is the point from which we reconstitute. The level should be a function of external conditions, coalition capabilities, internal capabilities, composition of the current forces, and our current strategy. Instead, Base Force is budget driven. It is worth repeating that the competitive international framework (Fig 3) is iterative and stochastic—it varies every cycle. We can change our resource allocation, power development blocks, and strategy each turn—but so can our competitors.

We can survive the next decade by slowly downsizing at a matched pace with our largest threat (the former Soviet Union) and our current weaponry should <u>not</u> become obsolete this decade. Then what? What happens to our resource base in a *do-nothing decade*? Can we reverse our decline? Can we fund *precautionary moves* to preclude a less capable defense industrial base? Pointedly, we argue about Base Force size in terms of near-term capabilities, threats, and cost but do *not* consider it as the point of departure for global war!

7. ***Administrative competence is the most neglected internal element of reconstitution.*** If we had ambiguous indicators, could we decide to take precautionary measures? When we want to increase the industrial response 10- to 50-fold, do we have:

- Priorities. Precedences established between essential civilian requirements and military needs? Would we nationalize energy resources? How would we deal with multi-national firms in CONUS? At what level can we make decisions?
- Incentives. Proposed legislation detailing amendments to acquisition rules and environmental regulations that could impede a mobilization response.
- Standby Agreements and Orders. Are there contract clauses to surge? Can we issue *education orders* now to see if new firms can produce Meals Ready to Eat (MRE)?
- Fiscal and Monetary plans. How long will a supplemental budget debate require?[36] We should have a contingency fund budget **separate** from Service operating budgets.
- Enforcement authority. Have we empowered FEMA? Do they control an interagency budget? How much time will be lost in resolving genuine priority conflicts?

I contend we do not know enough about the industrial base to forecast an industrial response. I suggest tabletop exercises involving the National Defense Executive Reserves (industry personnel that augment Commerce, Treasury, etc. in times of crises) to model a reconstitution scenario. The exercise should elicit responses from **four** industry tiers:

(1) *System Integrators (major weapon system developers);*
(2) Original Equipment Manufacturers (radios, computers,...);
(3) Sub-Assembly (Power supplies, printed circuit boards,...); and
(4) Component and material suppliers (semi-conductors, raw stock,...).

Time lags, dependencies, bottlenecks, foreign content, and regulatory obstructions should be highlighted. We need an informed basis before we can competently dictate a micro-economic, industrial sector policy. A macro-economic policy—not favoring specific firms or sectors— is preferable. No good industrial data base exists today and it will change constantly.[37]

IV. Defining the Threat: Potential Enemies and Proactive Strategies

> ...the real threat we now face is the threat of the unknown, the uncertain. The threat is instability and being unprepared to handle a crisis or war that no one predicted or expected.[38]

Defining the threat is the crux of any argument in defense planning. It is politically sensitive to say Japan, Germany, or the former Soviet Union will ever threaten us militarily. Forecasting is necessarily imprecise and imputing "evil" motives is

undiplomatic. However, I suggest that the following threat areas will face us now or in the future.

- Soviet vestiges. Direct nuclear threat remains with perilous control in a fractured, desperate country. They are likely arms supplier to radical countries—for hard cash, not ideology. Nuclear scientists in search of livelihood may pose the long-term threat.
- China. The most populous communist state with repressive policies and nuclear capabilities. They are a potential weapons proliferator, capable of regional expansion when Deng Xiaoping leaves power.
- Dangerous world. With the superpower alliances disarming while arming others, our *relative* advantage diminishes! "Iraq-like" conflicts are more likely and more lethal.
- Competitive world. As we reconcile with former adversaries, neutrals and allies will be increasingly competitive. A future, coordinated Europe (e.g. EC, WEU, IEPG...) could represent the principal military power. US actions today could shape and tame that military potential—"hobbling."
- Space. Crucial to our information networks. While "controlling the high ground" may not be a feasible peacetime strategy, we must not allow anyone else to deny us access.
- Threats to Other Competent Nations. If other nations are threatened, they will pursue credible military capability to deter war or defend themselves. Their buildup of modern military power may be viewed as challenging when we maintain relatively lower defense levels. Co-operative avenues may preclude their perceived need for increased arms.
- Spying. Espionage against the US military and command structure continues in addition to intensive espionage against American firms by allies.[39] What is our response?
- Structural Disarmament. Our nation's defense budget, plus FMS exports, will provide too small a market (structure) to bring armament development and production costs down to a politically affordable level.[40] The decline of *all* free market defense industries could decline precipitously leaving market-managed economies as the sole survivors.

Management by Fact. In dealing with the former Soviets and China we must remember that military power is a function of capability and intent. Fact: both countries have enormous capability—nuclear and conventional forces. Changing capability/force structure takes time. However, *intent* can change quickly. Although both Russia and China have made many positive reforms, their central leadership is in transition.

> In Stockholm on Dec 14, 1992, Russian Foreign Minister Andrei Kozyrev, speaking to 50 nations at the CSCE served notice that the interlude of international cooperation was over. He threatened "unilateral measures" unless the West removed sanctions against Serbia... Further, he declared Russia would defend its interest by military and economic means. Russia, he warned, was "a state capable of looking after itself and its friends."[41]

Russia/C.I.S. This "rhetorical device" reminds us of the hard-liners attempted coup against Gorbachev and the severe internal difficulties the Russians currently face. We should encourage and support the transformation of Soviet society toward the long-term goals of democracy, reform, economic prosperity, and social stability.[42] The democratic reforms have not brought quick economic prosperity. The "guns to butter" economic adjustment and establishing a legal structure for free enterprise is difficult. One-fourth of ex-Soviet Union industrial production went for its military.[43] This is where they are most competitive and they're desperate for hard currency. Our conversion assistance should aim at preventing *re-conversion* back to a military superpower.

A balanced strategy is in order as we see "mixed signals" from the former Soviet Union:

- delayed withdrawal from Eastern Europe and slow progress in nuclear disarmament,
- a military force too large for any defensive need with an increasing budget for arms[44],
- transfer of advanced weaponry to radical states such as diesel subs to Iran, and
- Yeltsin at a 'crucial time' needing all the help he can get if democracy is to succeed.[45]

For example—facing a cold winter, humanitarian aid could pre-empt the old hard-line communists who want to reverse the reform program. Ambassador Robert Strauss states Yeltsin is at a very crucial time and needs help. "If we could make this process work, instead of letting a void develop [so] that a new demagogue would step into, we'll save hundreds of billions of dollars in defense...".[46]

Arms control—disarmament and non-proliferation—must be the quid pro quo. I believe arms control with the Russians is principally an economic issue. The Nunn-Lugar amendment to financially assist former Soviet republics with strategic disarmament is promising.[47] US downsizing should be phased to coincide with ***factual*** *(actual)* Russian disarmament.

China. Like Mao before him, Deng Xiaoping will leave no ready-made strong successor. In a recent Feb. 12 article, the WASHINGTON POST outlined how Deng has completed a purge of the army, purged Yang Baibing—the Army's top political commissar and secretary general of the Central Military Commission, and Deng is preparing for government transition after his death.[48]

> Deng wants the army to re-embrace its move toward professionalism and to create a strong fighting force that will not only keep the party in power but will also keep step with China's goal of becoming the premier power in Asia within the next decade.[49]

Rogue Nations. The proliferation of ballistic missiles, chemical weapons, and advanced weapons technology puts the means of massive destruction into potentially dangerous hands.[50] With the disarmament of the bipolar alliances, the 3rd World gains a relative advantage. Ethnic violence, religious conflict, and border disputes will continue.[51]

The Gulf War demonstrated the need for American military leadership and the potential of a more dangerous scenario if Iraq had been less inept. Imagine the US losses if Iraq had attacked early in our buildup, improved SCUD accuracy, or escalated into chemical/biological weaponry[52] ("cheap nukes"). Future regional threats may be much more potent armed with modern weaponry from desperate arms producers.[53]

Competitors All: This scenario is likely to be the ***most controversial.*** It assumes a long-term perspective and a world of allies-cooperators, neutrals, peer competitors, and enemies. Three centers of rough technological and economic parity now dominate the globe: the US, the EC, and Japan.[54] Today, Japan and Europe see us as a strategic ally and simultaneously as an economic competitor. What is the proper strategy for a cooperative-competitive world relationship? What is the context of *threat* ?

> **Threat Definition: Anything that compels the consumption of substantial U.S. resources on its behalf, because of it, or in response to it.**

Responding to natural disasters, domestic disorders, and peacemaking all consume precious national resources as well as the afore-mentioned possible threats. Burdened by national debt, we can't afford to outspend our competitors; we'd hurt our economy. This reality prompted my game theory premise: *slowing down or stopping your competitor would be equally effective in winning the race. Internally*, we optimize our capabilities and *externally* , try to "hobble" competitors on a selective basis.

Less Cooperation, More Competition. We can expect more economic confrontation from the EC as the Soviet threat erodes. Our historic military alliance has less relevance. The biggest area of trans-Atlantic conflict now looms in trade where more than $50 billion worth of goods are disputed over General Agreement on Tariffs and Trade (GATT) terms.[55]

> Standing up to the United States on trade issues is one subject that gets people to rally around the European flag. It would be dangerous for the world economy, but some people here can see some merit if it brings the Community closer together.[56]

Similarly, we are trying to balance security ties with Japan while trying to reduce the trade imbalance which soared to ... $47 billion last year[57] I suggest we should challenge these adverse trends now while we are in command of the security protection they enjoy.

At what point do *trade* and *productivity wars* become military challenges? The countries that have the most economic power are the ones most likely to have the capacity to threaten us. I believe a strong industrial base, a vibrant economy, and manageable debt are fundamental to true security.[58] We should use our military entrée to Europe and Japan and attempt to control the complex (high value) military activities while "burdensharing" for lesser, manpower intensive functions. We enjoy a power position now; we may not later.

> At present (and for the next 5 to 10 years at least) no European military options will be possible without a NATO infrastructure, much of which is American, especially in space and in the fields of C^3I, EW, precision guided munitions, stealth technologies, antimissile systems and so on, including what has been called the ability to "orchestrate" all these factors to produce the decisive force multiplier.[59]

A *cooperative* method of "hobbling" competitors' efforts to build threatening power projection capabilities is cheaper than amassing large US forces or subsidizing production base for rapid mobilization. The time to act is now with our present, net superior capabilities; we are already seeing it erode on the margins.

Perceived Threats by Other States. Closely related to the above discussion is the fear that makes our current Allies wonder whether America will abandon them in the future.

> The Clinton administration's vow to concentrate on a domestic social and economic agenda has revived worries in Europe of "global unilateralism" and a retreat from foreign commitments.[60]

We should not only worry that some countries will build national strength (since they don't trust our continued support), but we should be wary that these individual buildups may prompt the large powers to build up as well. The principal example is in Europe. Political initiatives such as the Western European Union (WEU) or Independent European Programme Group (IEPG) have the net effect (in Russian eyes) of moving the Cold War line from central Germany up to the Russian border. Will Russia continue to disarm in these circumstances? Is the EC creating an "economic wall" and fomenting a perceived need for Eastern Europe defenses?[61]

Diffusing Uncertainties . We want to encourage global and regional associations. US forces must be a *contribution* —not the mainstay. The Conference of Security and Cooperation in Europe (CSCE) provides a European framework for all to cooperate politically, consult militarily, prevent conflict, settle disputes, and negotiate arms control in the post-CFE phase.[62] This pluralistic association should also complicate decision making for actions against the US (effective hobbling). The CSCE is preferable to the Western European Union (WEU) since CSCE wouldn't move the NATO border from the former West Germany to a WEU border abutting the Russian states. The CSCE is not suggested as a substitute for NATO. We

wouldn't want to extend the guarantee that attack against one is a promise of military commitment—particularly with the social problems facing Eastern Europe. CSCE is a forum for the two bipolar alliances and could be used to implement an Eastern Europe security zone.

The US should continue to support the UN in a global framework. *The UN can only be as powerful as the member nations cede power to it* . Paying our UN dues is cheaper than being the world's policeman. The UN spreads the burden; we avoid sole responsibility for outcomes. We should sincerely try to make the UN a success so other nations can look to the UN for stability. This would reduce other nations' uncertainty and incentive for arms buildup. Ceding power also draws national strength from our potential enemies (effective hobbling).

The Figure 3 Competitive Framework Diagram depicted the CSCE and UN as "sapping" political and military power from the national power blocks. We want these competing nations to fund, contribute forces, and trust a broad-based coalition effort rather than build strong national armies. It's an effective, peaceful strategy for the US.

"Friendly" Spies, Counter-Espionage. As the world shifts from military alignment in Cold War alliances to economic competition with regional associations, the use of intelligence as an element of military and economic power merits attention. In FRIENDLY SPIES, author Peter Schweizer details how the companies and governments of US allies (South Korea, Japan, Canada, Germany, and France) spy against American commercial firms.[63] How should the US respond to spying by economic competitors? The National Security Agency "is debating plans to shift its global electronic eavesdropping network to other activities, including spying on world trade and financial transactions."[64] According to CIA Director R. James Woolsey, in Senate confirmation hearings, "the Clinton administration plans to review whether economic intelligence should, for the first time, be shared with private companies or individuals."[65] There is a legitimate need to turn our national intelligence means against global industrial and financial networks aiding rogue states, terrorism, and narco-trafficking. For instance,

> The US intelligence community knew that a Britain-based company was buying military-related equipment for Iraq as early as 1987, nearly three years before the firm and its US-based subsidiary were ordered shut by export authorities in both countries...[66]

The US has followed of policy of using technology to save lives; I think that should continue. We have used espionage against known enemies for national purposes: force composition, disposition, and technical surprise. Today, our "Pearl Harbor" fear is

technical surprise—enemy weaponry that would negate our defenses and we'd have no countermeasure. Stealth is an example of this leapfrog technology. If our intelligence discovered foreign industrial competitive advantages (incidental to investigating for national purposes), the *details were not passed* to private American firms. Intelligence on foreign resources, trade and technology were required for the formulation and implementation of national policies. Direct evidence is valuable to support trade negotiations and to assess the impact of economic sanctions for unfair or predatory tactics. Should we change policy — targeting and distribution? With the globally intertwined economic network, who is an American firm?

Stepped-up counter-espionage against foreign intrusion should be our response—a *defensive* strategy. While I believe the economic strength of America's industry is a principal source of national power, I don't believe we should risk agent lives pursuing private firm benefit. I fear that exposing an American industrial spy would prompt protectionist responses from the countries we're trying to influence. No matter how alluring the competition's secrets or how capable our intelligence agencies are, I think the risk outweighs the benefit. The US has been a power that can be "trusted." *Benchmarking* is strongly encouraged—but above board. Therefore, I support continued covert intelligence for military and national policy-making purposes, but would add a denial strategy to advise US firms that are being targeted by foreign agencies. We are not yet ready to risk American lives in covert activities to support private economic firms.

V. Addressing The Conflict Spectrum: Focusing Reconstitution.

We "won" the Cold War with global forces poised in readiness. Our nuclear and large scale conventional forces provided "insurance" at the high end of the conflict spectrum—the area with national survival consequences. That large "insurance" plan carried a "high deductible" for the lower end of the spectrum. From Vietnam—to terrorism—to the "tree cutting" incident in the Korean DMZ, we have fought with one arm tied behind our back—trying to maintain strategic deterrent forces—while simultaneously exercising restraint during conflict so as not to provoke the *other* superpower. Now, we must adopt a balanced strategy—one of increasing trust in our former adversaries—while maintaining less costly military "insurance."[67] I fear a policy of drastic conventional downsizing could lead us to: non-involvement in world affairs; reliance on foreign alliances thereby lacking capacity for unilateral action; and "painting ourselves into a nuclear corner" lacking a timely, conventional capability. The previous section reviewed potential threats. This section addresses:

(1) a transition military strategy for the US;
(2) forms of economic warfare; and
(3) proactive forms of "hobbling" potential adversaries—cooperating in peace-keeping, humanitarian, and low intensity conflict, but denying foreign leadership and power projection force capabilities that could eventually threaten the US. .

1. **The Four Pillars of US Strategy.** Our stated military strategy promotes a Base Force which is the right combination of power for deterrence, forward presence, crisis response, and reconstitution. Facing global economic challenges, the "right" combination for national defense is a *cheaper* one. To save money, we will downsize all elements of force structure but will take proportionately more from nuclear levels as part of arms control and will unilaterally and greatly reduce our conventional ground forces.

Nuclear Deterrence. An offensive and defensive nuclear shield will be retained for deterrence and escalation control. In the nuclear arena, *avoiding* the fight demands more attention than *winning* the fight. We will maintain a nuclear deterrent and continue disarmament to lower overall levels matching the reduction rate of the C.I.S. Controlling nuclear proliferation to prevent radical states' ownership should be our primary concern. I believe the technology to build nuclear weapons will be generally available—if not now (through Russian nuclear scientists), then sometime. Therefore, we should focus on the nuclear fuel and ancillary equipment. We need a strict accounting from the Russians (and all four nuclear-equipped republics) on nuclear material status. Economic and humanitarian aid would be a worthwhile quid pro quo to control nuclear materials.

Nuclear defense in the form of GPALS (Global Protection Against Limited Strikes) also has merit. However, ballistic missile delivery isn't the only way. I believe we face an equal threat from a terrorist's nuclear *truck* or a derelict *boat* drifted into coastal waters carrying chemical or biological agents. If we thought the world's rogue actors were ever *controlled* by the "Evil Empire," we should have even greater fears now. Our heavy investment in national technical means (intelligence "overheads") may not be as relevant as counter-terrorist HUMINT (human intelligence).

Crisis response. By responding to crises at the lower levels, we preserve military authority and we demonstrate the US has the willingness to respond. Perception of power combines capability and intent. Responding in crisis reinforces deterrence; it prevents adventurism. Where does responsiveness end?

> If the world does nothing about what's going on in Bosnia...what kind of signal does that send to other places, where similar things might erupt: And if the world does nothing about Bosnia, what message does it send about a willingness to sit back and let these things happen also?[68]

It has been suggested that air strikes against targets in Serbia, intended not to defeat Serbian military operations in Bosnia, but to inflict enough pain on the Serbian leadership that it would halt the military operations. Although I like the idea of the US retaining the decisive air power mission — unless all allied and humanitarian ground forces are withdrawn beforehand — we could have a mass hostage situation. Many of these new roles and missions in the crisis response arena — going in harm's way with skeleton forces — carry this risk.

Non-conventional military missions. New missions assigned to US forces include:

Sanctions Enforcement	Election Monitoring
Peacekeeping / Humanitarian	Peacemaking
Wars of Conscience	Drug Interdiction

The principal decision we have to make in the international context is what *leadership role* we will assert. Will we place US troops under foreign command? We're accustomed to leading the coalition effort; usually by virtue of contributing the most resources. Sometimes coalition warfare demands unity of effort more than unity of command. I suggest there are cases when we can put our troops under foreign control—when it's relatively safe. We should retain leadership in the complex tasks. If we need accurate airpower to protect our engaged troops, we want it to be our call. In my opinion, we should demonstrate willingness in the less dangerous situations so that we can have unity of command under our leadership for more desperate cases.

Forward Presence and Reconstitution Time. These pillars are closely related to crisis response. Without the "supervision" of the Russians, we can expect rogue actors to act on their own initiative. A known delay in our decision-making and force mobility could invite an enemy strategy of quick strikes followed by a willingness to settle peaceably. Serbia's aggression and negotiated gains are cited as precedent. Similarly, if our reconstitution time is known to be long, are we simply inviting an enemy to make 'bite-size' conquests that can be finished "before the 'cavalry' arrives?"

Our ability to deter adventurism rests on our capability to respond. This requires: decisiveness to act, mobility, and application of decisive force. "Just in time" forces are not possible if essential support elements are irretrievably placed in the Reserves (e.g. water

purification, civic affairs, etc.). We put our reserves out of reach after Vietnam to require political will and national resolve before committing troops. Now, we need a fast, tailored response rather than a political showdown. Political decision-making offers a time lag for the enemy to consolidate his conquests *before* we arrive.

As we quickly dismantle our military, one wonders if a potential enemy isn't viewing our overwhelming advantage as transient and waiting for his relative situation to significantly improve. Will our Allies be more at risk? We temporarily replaced Israel's war losses in the 1973 war to deter further aggression. We similarly assisted the British in the Falklands. Reconstitution signifies the capability to respond now and later rebuild our power advantage.

2. **Economic Warfare.** More than ever, economic security in an intertwined world is fundamental to our national security. What is the spectrum of conflict in this competitive arena? How real are "Trade Wars" and to what extent will we go to protect domestic industry and prosperity? In the Figure 3 competitive framework, we depicted domestic, regional, and international markets. Within each, I assumed reciprocity. However, economic warfare considers manipulation of those markets for predatory purposes.

Some areas of possible *economic exploitation* are suggested: [69]

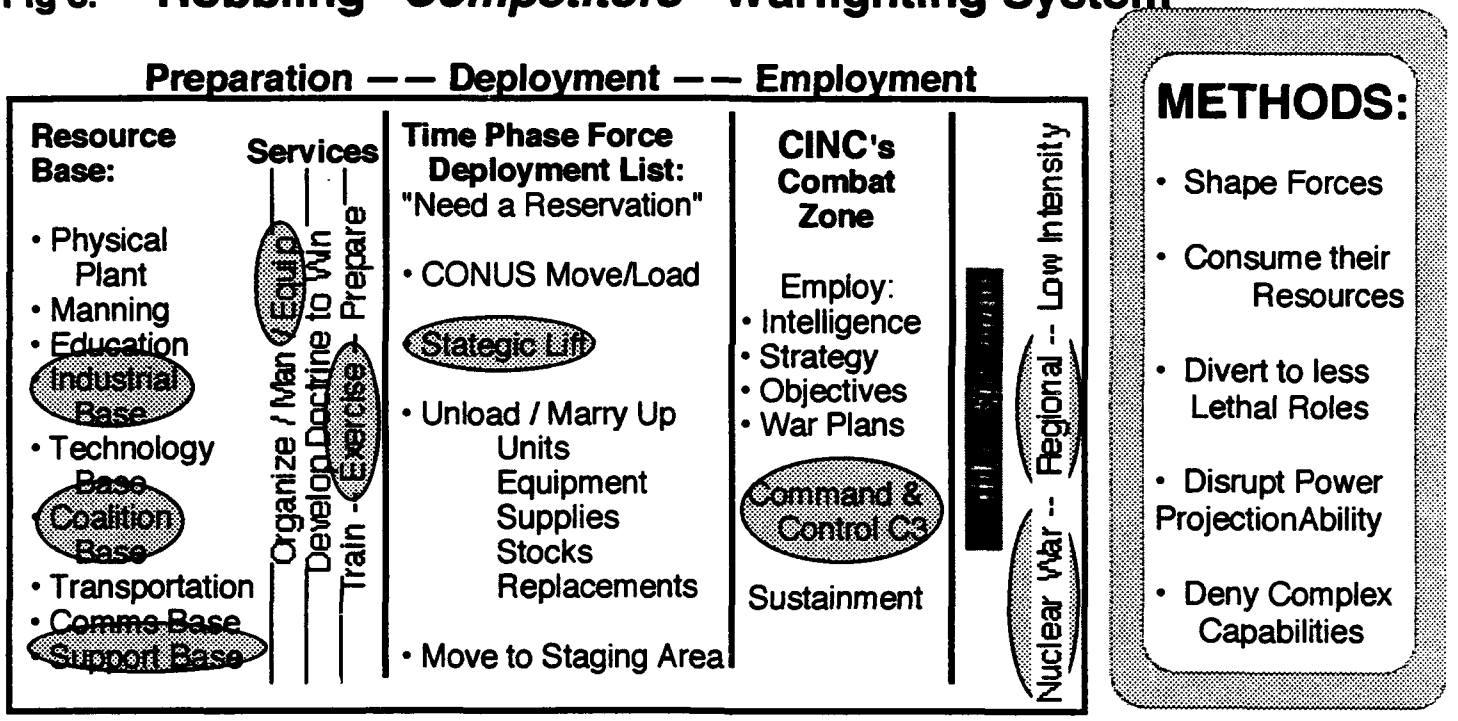
Trade embargo	Finance	Payments	Investments
Cornering market	Blacklist 3rd parties	Propaganda	Boycott
Subsidies	Cartels	Exchange Rates	Market Manipulation
Gold	Banks	Resources	Dumping
Industrial Spying	Destabilization	Commodities	Hidden cost of Assets
Use of International Organizations: World Bank, IMF, GATT negotiations, etc.			

In my opinion, these *predatory* economic tactics do not belong in a global economy. However, it is difficult to stand idle while our aircraft manufacturers suffer in unfair competition against overtly subsidized European consortiums. We have a $47 billion dollar trade deficit with Japan, as we allow their products in, while our products face an impenetrable *keiretsu* confederation.[70] What is my point? *Act now* insisting on a "level playing field" while we offer them continued military protection. If the answer is "no"—it is better to find out now. Seats on the UN Security Council and developing a G-3 consultation network provide proper recognition of Germany's and Japan's economic status and hopefully, encourage continued growth of free trade—not protectionism.

3. **"Hobbling" Potential Adversaries.** The term *hobbling* may seem offensive when discussing current treaty partners. However, the method of implementation is benign—cooperating in peacekeeping, humanitarian, and low intensity conflict—yet denying greater force capabilities that could eventually threaten the US. Our goal is to eliminate their long-term capacity to translate military prowess into offensive power.[71] . We want to affect their military war fighting system so they can't threaten us but remain capable enough to accomplish functions in coalition warfare and low intensity conflicts for our mutual benefit.

We want to shape our potential adversaries' forces, consume their resources, divert, disrupt, and deny capabilities that could threaten us in the long-term. (Targets depicted in Fig 8.)

Fig 8. "Hobbling" *Competitors'* Warfighting System



• *Consume resources.* "Burden sharing" diminishes rivals' military funds to our benefit. For example, encouraging NATO funds for a JSTARS ground targeting plane or an "Open Skies" reconnaissance platform benefits US industries and precludes European suppliers—similar to NATO AWACS program. Foreign payments—almost $60 billion—for Desert Storm operations served our interests.[72]

• *Divert.* Encouraging roles for competitors such as "blue helmet" peacekeeping, arms control verification, and humanitarian missions merit international recognition yet offer no military value. On a quid pro quo basis, we should allow foreign arms industry to produce military elements from industries that we could easily reconstitute in a few years—

such as medical supplies and bulk ammunition. We would retain industries that are difficult or time-consuming to replace. We can encourage low intensity forces and discourage more lethal, power projection armies.

• *Disrupt.* If power projection forces are fielded, we should attempt to impair their military effectiveness. For example, the British fleet tied up Napoleon's navy in the harbors denying them proficiency. In today's context, providing US airlift to competitors for collective crisis response will deny them the wherewithal and contacts necessary for global deployment. We are attempting to break the "flow" of their military system (Ref. Fig 8) by targeting system segments: in this case—training and deployment.

• *Deny.* We should preclude an efficient command structure and development of command and control capabilities. Continuing US leadership and offering our C^3I capabilities precludes development at the general forces level that could eventually threaten us.

Summary Concept. Despite our current emphasis on US domestic issues, we must ensure—by our responsiveness in crises—that allies do not feel that we will abandon them in a "Fortress America" response. We will maintain a lower nuclear deterrent and place more of our conventional ground deterrent in reserve forces. We hope to proactively lead potential adversaries away from developing threatening capabilities while cooperating in peacekeeping and low intensity conflicts. Hopefully, the cooperation can extend into economics as well. I believe the time to act in shaping these relationships is now.

VI. Obsolescence: the 'Trigger' for Production

> Technology has been the linchpin of Western military forces in recent years, and it is highly likely to continue to be of principal importance in the future as we draw down our overall defense spending and the size of our standing forces.[73]

Between war, the US should create wealth. Part of that wealth is secured in inventory—technologically superior weapons to maintain military superiority. Unmatched inventory is a source of wealth. However, in the past, we procured these weapons inefficiently, rushing to field incremental improvements to achieve technological edge against an enemy bristling with quantity. This section analyzes acquisition practices and the requirement for technology. I urge a dual track approach for technology: one for breakthrough concepts; and another track for enemy reactive missions in crisis response. I argue for efficiency in production rather than drawn out procurements buying 'overhead' rather than military power. Finally, the US will should continue to pursue technological advances in military weapons — even though current inventory is not obsolete — because it will save US servicemen's lives, minimize civilian losses, and decisively end regional crises.

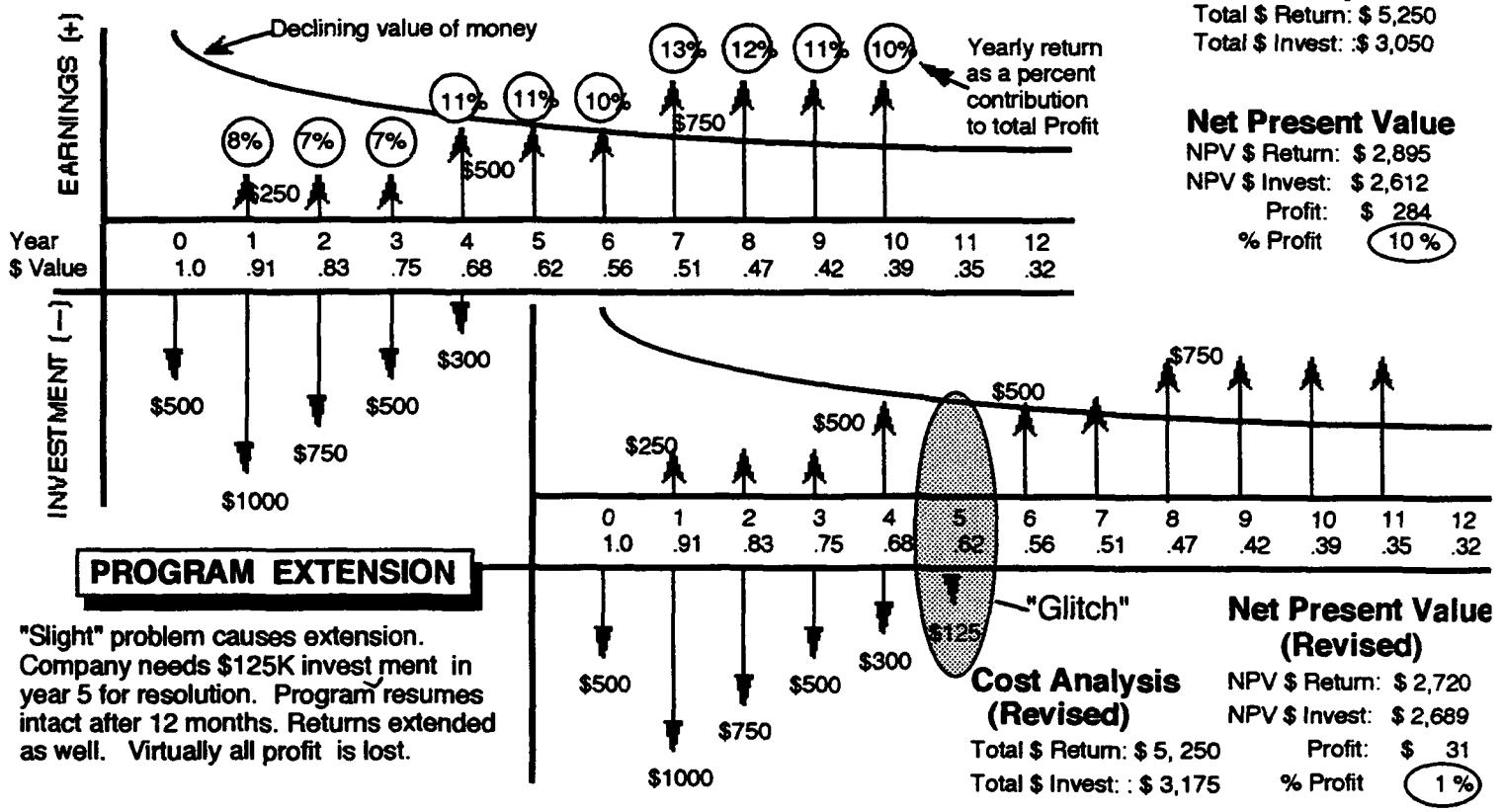
Production programs keep the defense industries in business. In recent years, 10 major aerospace firms have lost $100 million each on fixed price programs — total industry loss over $3 billion.[74] This occurred before the defense budget drop. How can we expect to maintain a technologically superior force with even less resources? This section addresses:

- How current acquisition practices jeopardize company's financial health.
- Assessing the proposed new acquisition strategies—Prototyping
- Obsolescence and life extension strategies
- Competitive strategies: FMS to create dependencies and pre-empt foreign industries.

Risk in Current Acquisition—Neither side is 'Winning'.

I believe 'extraordinary leverage' is the root cause of our acquisition problems. Both the government and supplier have 'extraordinary leverage'—but at different times. The asymmetry of control has created dysfunctional behavior—on both sides. After the government contracts for a weapon system, the *seller* gains extraordinary leverage.[75] Where else can the government buy an additional F-16, B-1, or F-14 except the original supplier? We search for ways to (1) incentivize contractor cost control and (2) reduce total acquisition time. *Both of these problems* are results of the asymmetric leverage situation.

Fig 9. TIME VALUE OF MONEY EXAMPLE



The government is aware this will happen. Consequently, extraordinary provisions are levied up front. The government has extraordinary leverage up to engineering and manufacturing development (EMD) contract award [formerly—full-scale engineering development (FSED)] . After that, the government usually can't amortize the high costs of establishing a second supplier. Therefore, the government creates a tremendous contract "hurdle" with extraordinary detail intended to ensure proper behavior *after* contract award. Specification of product, truth in negotiation, work in process reporting (for possible termination with cause), technical achievement, etc., etc. are levied. B&P (Bid and proposal) costs from the companies can include millions of dollars in technical development (citing ATF competition) that will *not be reimbursed.*

Figure 9 depicts a net present value analysis for a financial flow model from a hypothetical $5 million procurement. The *planned* cash flow model (appears on top) was *revised* to reflect a minor problem (a 'glitch') occurring early in the program resulting in a unfunded program extension (extended program on bottom). In this case, the company investigates and resolves the issue maintaining their team intact — a small investment. But after restart, nearly all program profit is gone. This scenario seldom happens; usually funding or quantities drop too!

> The largest ['94 defense] savings, $5.8 billion, would come out of procurement accounts, achieved mostly by scaling back weapons purchases or slipping production schedules.[76]

<u>What normally happens.</u> First, programs try to live within the dollars available; then they try to stay 'within threshold,' trying to make adjustments at the lowest review level so the *wounded duck* [troubled] program isn't killed. If we are expected to *live within our means,* we reduce the quantity and delay deliveries until the 'glitch' is resolved. This approach seems reasonable.

However, extended schedules become self-fulfilling prophecies. Controlling budget can lead to work stoppages when functional budgets expire. Controlling schedule automatically sets the amount of time fixed overhead can charge to the program. In either case—setting the correct price target for a design-to-cost effort or setting the correct schedule to minimize overhead charges—relies on relevant acquisition experience. I suggest that instead of extending program schedules, projects could be fielded in half the time (and half the cost) if requirements were pared to 80%. Once fielded, the **users** could advise where remaining program dollars should be spent.

The crucial part of this acquisition strategy is that a <u>management reserve</u> be saved to for the unknown-unknowns (unk—unks) *after* fielding occurs. For example, denying the B-1 funds to correct valid ECM problems, encourages the user to leave the program with the

developer even though training for fliers and maintenance would be beneficial. Taking too long to field programs is due — in part — to this schedule/cost/user problem.

What's the result? Referencing the original cash flow example in Figure 9, I circled a percentage above each annual payment the contractor forecasted based on deliverables. Note that years 4 through 10 each carry all or more of the potential program profit (a fair 10%). If we delay or reduce quantities — we can take away **all** profit. If we suspend the program temporarily to investigate a problem and then resume the original program, we will be paying with *future* dollars (reduced in value by inflation and opportunity costs). Reducing the buy raises the unit cost by spreading fixed costs over less systems. Usually we do both — less and longer. Either way, private shareholders will have made an involuntary contribution to national defense and the military receives fewer systems — late.

Who wins? Dr. David Chu (former OSD Program Analysis and Evaluation director) suggested reviewing the terminated A-12 Navy program in terms of *net present value*. The major acquisition review (MAR) extended deliveries and deleted quantities. Consequently, there was negligible hope for profit in the restructured program.

The four elements of acquisition are: cost, schedule, performance, and supportability. We talk about the cost-performance tradeoff and supportability to minimize lifecycle cost. I discussed the time value of money example because we can't treat cost and schedule *independently*. Cash flow timing determines profitability. Our two acquisition problems — cost control and schedule delays — aren't separable; they're functionally linked. I suggest the focus should be on **time**. Controlling schedule automatically controls costs and dictates more mature system components. Controlling budget without controlling schedule leads to work stoppages—as company funds expire—yet leaves the technical opportunity (risk) open.

Prototyping attempts to reduce production costs by resolving technical risk and configuration before full-scale production. The new acquisition strategy emphasizing prototyping may not manufacture the system. The clear intent to separate R&D from production should segregate the low cost from the high cost processes. Linkages between the two will suffer unless we call for CAD/CAM producibility as part of the prototype effort. Once we start the production phase, I believe we must maintain schedule to be cost effective. Reducing risk up front is smart, but we also need an efficient production rate. Low rate production may provide stability if sub-tiers can economically produce small lot sizes. After the rate is decided, *any change* requires a coupled schedule/cost (profit) consideration.

Result? Dysfunctional behaviors. What is the result of current acquisition failures? Empirically, we see the government regulations growing with added contract clauses—adding to their leverage before contract award. In response, contractors will try to minimize cost/risk exposure which means minimum capital investment. Hiring and firing employees has more flexibility than a long term capital investment, Evidence? The nine largest defense prime contractors have a combined capitalization smaller than that of Walt Disney.[77] I contend the problem is leverage—bilateral monopolies with advantages at different times.

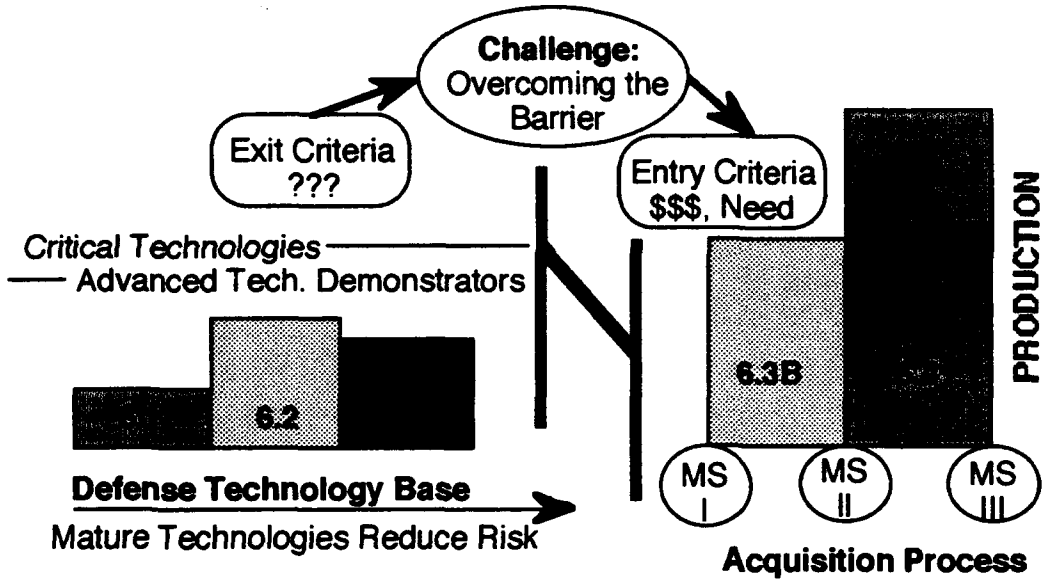
Northrop capitalized development to sell an export F-20 fighter within the technical performance restrictions of the Cold War era. Result? They lost $1 billion. The F-20 wasn't in the US inventory and they didn't sell any. This illustrates our (government) leverage advantage before EMD. Any dollars a contractor invests before EMD are worth *nothing* if the firm doesn't win a US development contract. Unlike commercial contractors, they can't have a fire sale with reduced prices. While a bankrupt DeLorean sports car manufacturer unloaded stainless steel novelties, not even one F-20 was sold. The F-20 was a good point defense aircraft with a unique shark-nose configuration and commonality to F-5 logistics support—yet no return was realized on $1B investment. Similarly, the losing team in the Advanced Tactical Fighter (ATF) competition recovered nothing from its competition "investment." And what was the government response? Fraud, waste, and abuse publicity suggests we audit *more* and build the government leverage even higher. Note: these cases occurred during the defense build-up. What will be the result with defense funds greatly reduced?

I argue for efficient production. Per Ben Franklin's adage "time *is money*", Figure 9 graphically shows how cost and schedule are functionally related. In my opinion, it is wise to delay start of production until ready (technical/production risks minimized.) An enemy threat is not driving an accelerated Initial Operating Capability (IOC). But once production starts—reduced quantities, breaks, stretchouts, etc.—make the product unaffordable. It is during production that the contractor has leverage; this is the most costly phase to make major adjustments.

How we plan to buy weapons - Technology prototypes.

The new acquisition strategy stresses technology development—extensive prototyping of weapon systems to meet stringent requirements for 'hurdling' (overcoming the barrier) into engineering and manufacturing development (EMD). Although I think the Secretary of Defense (SECDEF) Aspin's announced resource strategies are much more realistic than former Under Secretary of Defense (Acquisition), USD(A), Yockey's, what does industry see?

Fig. 10 Jumping the Threshold: A "Hurdle" to Production



Types of Funds.

6.1 Basic Research Funds. Scientific study to increase knowledge.

6.2 Exploratory Development. Efforts toward specific military problems.

6.3 Advanced Development. Test hardware for proof of design concept

6.4 Engineering Development. Full-scale development for Service use, not production.

Risk Management. There are three components of risk in weapon system production:

- *technical risk* for performance feasibility.
- *commercial risk* to deliver system at a profit. Manufacturing process and synchronized program integration are key.
- *military utility.* on the battlefield. [78]

Figure 10 clearly demonstrates the 'hurdle'.[79] As previously discussed, to the left—the government has a distinct advantage; to the right—the selected contractor has the advantage. The government is seeking "best value" and industry is seeking "economic value" spurred by financiers, requiring return on investment.

Overcoming The Barrier. In a HASC memo,[80] current SECDEF outlined the exit criteria as: A) technology works, B) developed to meet threat, and C) represents a breakthrough for battlefield operations. This addresses management risks #1 and #3: feasibility and utility. Proof of feasibility and utility is accomplished by *objective* tests. However, I perceive the only passing grade in acquisition testing is a demonstration of *unqualified success.* How far ahead must we project the threat? The *longer* it takes to field a weapon system (currently 12-15 years), the *more capable/demanding* the potential threat can become. Notice that technology demonstrator/prototype activity in the current science and technology (S&T) emphasis is to the left of the hurdle—where the government has leverage. Assuming we 'rollover' prototypes until we meet feasibility and utility criteria — is it executable profitably (Risk #2)? *State-of-the-art product technology is never 'state of production' manufacturability!* On what basis have we gained confidence before we shift leverage to the production contractor?

Obsolescence and Affordability.

I contend we won't update/replace systems unless current systems are obsolete and replacements are affordable. I agree with the emphasis on technology on the left hand side. Technological surprise is feared as the "Pearl Harbor" of tomorrow. Preserving design teams capable in military applications is imminently worthwhile. However, an advanced technology demonstrator may involve only 200 designers and offer $200 million for an adapted platform with breadboard subsystems in a 3-to-5 year period of performance.[81] High fidelity ground simulators can demonstrate systems integration and scaled models or variable stability airborne simulators offer cost-efficient surrogates for aerodynamic studies. Do these activities reduce acquisition risk, preserve industrial capacity, and provide technological advantage to front line weapon systems? Producibility is essential and the upfront work will reduce performance risk and concurrent engineering could enhance manufacturing. But without actual production, the lines will go cold and fired-workers skills will be lost. I argue for more frequent transitions to production for crisis response.

Definition of Obsolete: Fundamentally, a DOD system is obsolete when someone has something better — *it's relative.* Obsolete also refers to outdated information/doctrine and unaffordable support costs, but capability advantage is the most short-lived. Why should we be concerned when we have a huge inventory of systems with demonstrated prowess over Soviet surrogate Iraq? In my opinion, the end of the global standoff means we have made the world safe for regional wars and smaller conflicts. These struggles will be waged with "Blue" (Western Democratic) systems as well as "Red" (Soviet Communist) weapons. Our capability against Blue forces (including US systems in foreign hands) has not best tested as seriously as the Red threat. Obsolescence will be tested in these lesser conflicts with little or no warning. Then we must decide if the test was fair, the outcome operationally representative, if an adaptation is necessary/available, and if we should act now, or wait to produce the next generation system.

There are 5 mission areas where we respond to the enemy's initiative and encounter disparate systems with little warning: 1) special operations/counter-terrorism; 2) counter-narcotics trafficking; 3) psychological operations; 4) counter-measures against enemy command, control, communications systems (C^3CM); and 5) reconnaissance and intelligence. Survivability requirements *increase* as the threat spectrum *decreases.* We don't want to lose *any* aircraft, lives, or POWs in a brush fire conflict. As we are increasingly involved in non-traditional roles, these 5 mission areas will have greatest leverage in the lower spectrum conflicts.

Affordable, Dual Track Approach. Technology for technology's sake won't justify budgets. One must convincingly answer the blunt question: *If we don't do it; **so what?*** There must be a mission reason to jump the 'hurdle' and buy/modify operational systems. I suggest that we should jump the hurdle more often but with smaller efforts. Supporting the five quick reaction missions with advanced sensors, stand-off targeting, electronic intrusion, command and control webs, survivability, deception techniques, artificial intelligence applications to reconnaissance, etc. offer the chance to produce, integrate, and field weapon subsystems. Those elements can become mature modules to a new, replacement airframe and simplify program integration risk.

I recommend a dual track approach: (1) R&D for the breakthrough war fighting concepts; and (2) successive system upgrades for enemy reactive missions. I am encouraging a Pre-Planned Product Improvement (P3I) approach where near term mission effectiveness is balanced with efficiency. Adding mature systems is preferable to "state-of-the-art" goals where the last 10% of technical performance requirement adds 1/3 the cost and 2/3 the problems in reliability.[82]

Stages. Space rockets fire in stages because we can't build one rocket big enough to carry enough fuel to lift payload, fuel weight, and the giant fuel container all the way to space in one step. Solution: smaller stages fire sequentially as the heavier, expended stage is dropped. This is an analogy for a sequential acquisition strategy using logistically supportable modules proven in the five QRC (Quick Reaction Capability) mission areas.

The P3I strategy successively fields sub-system technologies as they mature and become affordable. Fusing technologies could be done in stages—incremental improvements—not one giant leap. Modular growth could utilize commercial specifications for system contents and military specifications for the interface—form, fit, and function. We should define interface standards to maximize availability (competitive sources) for component upgrade. The pre-planned concept would make provisions for space, power, weight, etc. so there would be a minimum of redesign and wasted effort.

The most important element we preserve in an incremental improvement acquisition strategy is the logistics infrastructure. Each weapon system carries a substantial investment in trained people, operations and maintenance integration, tooling, test sets, parts supply, and the developed system coordination to keep the planes flying safely. To illustrate the extensive time/cost commitment we make in logistics support, I have outlined the elements in Figure 11.[83] Provisioning all these support elements are a forgotten part of the total system. Faced with diminishing procurement funds, incremental upgrades to

platforms is prudent. Additionally, *applying technology to the support structure* may be the most cost effective approach in minimizing downtime, thereby providing more aircraft for operations.

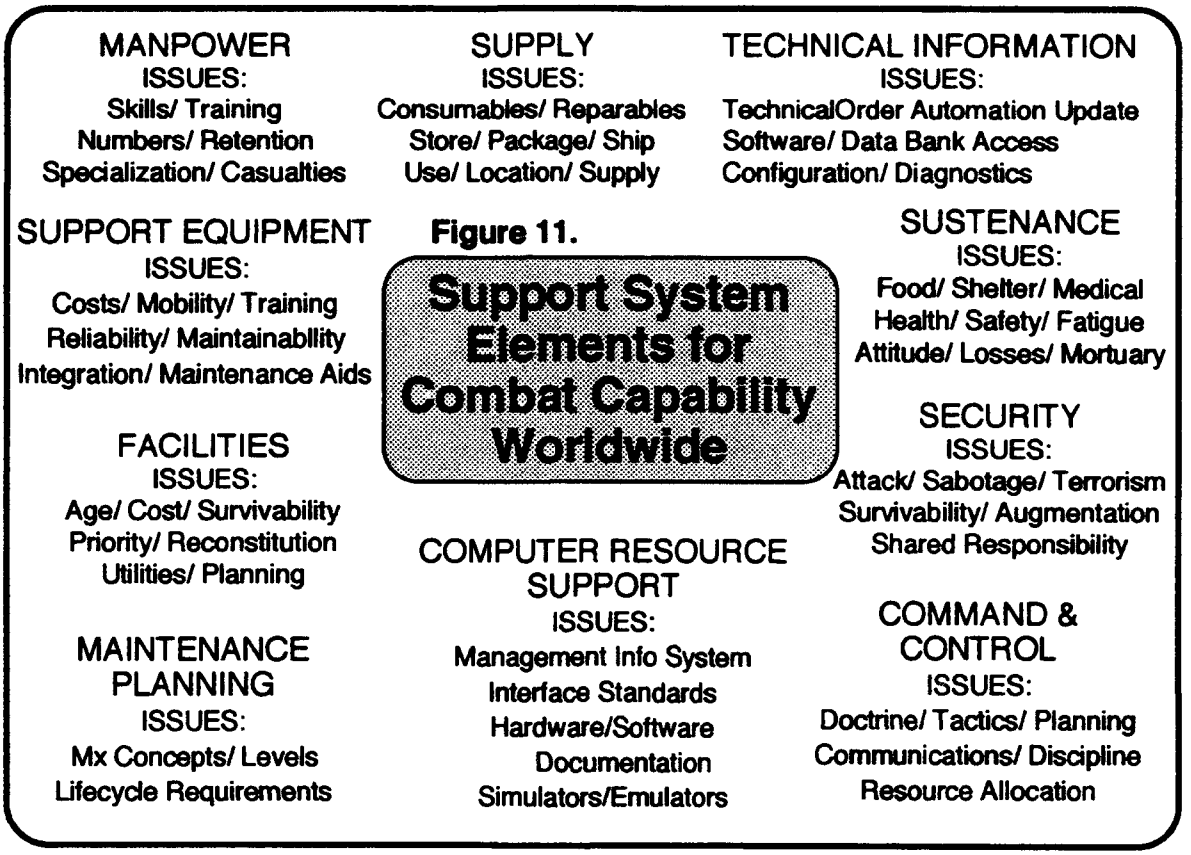


Figure 11.

Risk. The P3I strategy trades potential near term effectiveness for cost efficiency. Agility in the short term is maintained since forecasting the long term future is so difficult. Shorter schedules for these smaller efforts reduce cost exposure. As I said before, cost and schedule are functionally related. Sharing a systems logistics base saves cost, but having only one type of subsystem simplifies enemy countermeasure tactics. It's a risk tradeoff.

Mission performance vs. weapon system. The other significant risk is that we will be locked into current concepts and may not consider unconventional approaches. This is where prototyping is the *ideal* strategy. However, since R&D prototyping may not lead to production, mission area management cannot be centered on individual weapons programs.[84] Accomplishing missions (e.g. precision strike, air defense) must be considered on a functional basis rather than detailed design requirements for a system upgrade/replacement. Funding must be on the basis of mission area shortfalls, not constituent advocacy. In our political climate, an unproven mission concept must hold tremendous potential to divert funds from current programs.

Aggressive Foreign Military Sales (FMS) as a Competitive Tactic.

This last acquisition consideration is admittedly controversial. Selling excess defense articles is suggested (1) to pre-empt foreign suppliers ("spoil" the market), (2) to build ties (and controls) on recipient nations, (3) to expand our logistics infrastructure, and (4) to avoid aircraft storage and preservation costs.

US and foreign fighter aircraft manufacturers all face reduced demand from their armed forces. Because of jobs consideration, few industrial nations will forsake their domestic suppliers for a foreign product. But there isn't enough internal demand to make unit costs affordable, so everyone seeks outside markets. With the world made "safe" for smaller wars, I believe there are many nations in the market for self-defense aircraft.

Survival at Stake. The FMS market represents a survival hope for defense firms on both sides of the Atlantic. I do not believe FMS is the way to save our Defense Industrial Base. There is too much foreign competition to keep our production lines warm and profitable. Further, "hot" competition proliferates advanced technology. A hobbling strategy would be to pre-empt or out-compete foreign arms industries now. Their future reconstitution ability would be greatly diminished—a relative advantage for us.

We have significant excess inventory that is the equal of any competitor's product. In the recent "Roles and Missions" study, one of the major suggestions was to eliminate or sharply reduce the air defense fighter force of 180 aircraft.[85] These fighters were intended for continental air defense against Soviet strategic bombers. Rather than paying to store and preserve these planes, I suggest the US government sell them ***cheaply*** at fully depreciated prices as excess defenses articles[86] to North Africa (e.g. Morocco), the Pacific Rim (e.g. Malaysia) and the Mid-East (e.g. Kuwait, UAE). We won't be introducing a new weapons class to these areas. In fact, F-16 co-production agreements exist with several countries (e.g. South Korea and Taiwan). We could build access agreements and *hobble* foreign suppliers.

Providing aged but capable excess articles at reasonable/competitive ('rock bottom') prices to these selected countries could greatly reduce the potential world market and discourage a foreign supplier from developing a more advanced weapon system for export. Commercial aircraft require a production run of approximately 600 to be profitable; a larger run of smaller, fighter aircraft would be required to break-even.[87] Those advanced fighters would likely be proliferated. This "hobbling" sales strategy of supplying a few aircraft to less risky countries spoils the total market opportunity required for economy of scale for manufacture.

Risk—Technology Release. A principal argument against advanced arms sales is that someday we may be facing these systems ourselves. Iran's F-14s are a prime example. I counter by arguing that if we don't transfer these excess planes, we will see even more advanced "Blue" systems from France or Britain or "Red" systems from a cash-starved Russia or arms producer China. "For example, Belgium plans to sell one-third of its 135 F-16 fighters and 60 Mirage fighters."[88] *In any case, we're going to be facing advanced weaponry.* We already have reason to prepare against unfriendly Blue forces in foreign hands (Iraq and Iran). The countries proposed for excess arms transfer do not include rogue states and may facilitate base access for US forces in times of crisis response.

Wouldn't it seem safer if somehow we could secretly plant a disabling fuse in case the government became unfriendly to us? In a cooperative way, we accomplish that through our logistics support program. We create foreign dependency—a hobbling tactic. The Figure 10 logistics support chart illustrates the scope of dependence. Some critical capabilities — such as reprogramming defensive systems with threat parameters — are retained by the US. FMS is only executed as an element of our national security policy. I suggest the benefits of selective arms transfer outweigh the risks of hot competition and arms proliferation.

Targeting 'Obsolete' Markets. We should look at when foreign aircraft will become obsolete and plan to outcompete other nations' arms industries. US F-104s, F-4s, F-5s, and French F-1 and F-3s are ready for replacement.[89] These limited markets may not support two suppliers; whoever can get in *first* wins. We may want to adjust our replacement aircraft acquisition strategy so we can pre-empt or co-opt new developments by foreign producers (e.g. the consortium EuroFighter 2000 with a production start in year 2002)[90]. For example, we could adjust our Multi-role Fighter (MRF) procurement to a non-Stealth approach (e.g. an F-16 'cranked arrow' design variant) to simultaneously satisfy the market for obsolete British Aerospace Tornados. Of course we would sell an appropriately 'detuned' version, but the principal advantage is that we would have a significant design and production advantage over potential adversaries.

While I do not think there is a sufficient FMS market to keep *all* the US defense firms healthy, I believe that capturing the few remaining markets will be sufficient to weaken our competitors significantly. We gain by relative advantage.

Beyond Obsolescence: a Continuing Requirement for Military Technology

If our inventory embodies the best current technology and no other country has something better (definition of *obsolete*), is the latest, far-reaching technology required and do we

have to chase military technology? There are clear pros and cons but I believe the arguments *for* outweigh those *against*.

Against: Advanced technologies aren't applicable in Low-Intensity Conflict (LIC). The US was bogged down in Vietnam and the Russians in Afghanistan despite enormous technology advantages. Murder in Bosnia continues as we attempt to define a political role and military objectives to support those political goals. One could argue that there is no more technologically advanced nation than the US and we should instead strive to balance joint and coalition warfighting doctrine and unit training with our current advanced weaponry.

For: Advanced technologies save lives. Desert Storm was lethal demonstration of surgical precision with overwhelming force. It may have created an enormous expectation where 10,000+ enemy casualties are taken at a cost of 100+ American soldiers. With stealthy, precision strike—not only were US losses reduced—but civilian losses and collateral damage minimized.

Second, even medium technology SCUDs from Iraq required a high technology response (Patriot) to prevent casualties. One suspects increased availability of less-advanced, but capable weaponry from the former Soviet Union republics. The notion of a head-to-head technology race is inappropriate when we are risk averse to lives lost.

Finally, our continued pursuit of high tech weaponry may drive others out of the weapons market. This pre-emptive tactic is a coherent element of a military policy to retain the complex elements of warfighting.

Although I argue for efficiency in military acquisition and relative advantage in a multi-polar competition, I believe there is sufficient reason to continue to pursue military technology. Technical "surprise" by an enemy will have more effect on the political scale than on the military balance. However, this supports ongoing *enemy reactive* mission upgrades—the second half of the proposed dual track technology approach.

VII. Industry Reactions and Government Responses.

In this paper, an international competitive framework was developed and game theory strategy applied for internal and external approaches plus cooperative tactics to "win" the reconstitution race. This section looks at the probable survival strategies defense industries may pursue. Then, government responses are examined. Consolidating and using arsenals is part of the strategy. However, our goal remains to build national power for advantage in world competition. Therefore, "fusion" is recommended so that economic power can be

maximized in peacetime yet react quickly to provide military power when threatened. A macro-economic industrial policy is recommended to encourage this fusion strategy.

Private Industry Options: Smart Downsizing.

The declining defense budget will be most severe in procurement funds. When the budget is tight, people don't miss the new weapons and programs they've never had.[91] We are reducing operations and personnel, but they are not shrinking as fast as the budget total. Further, base closings are slow and funds are necessary for shutdown. Consequently, operations and maintenance funds consume a relatively larger proportion of the remaining budget; procurement is less. *There will be less defense business.* Continued outlays from prior-year budget authority has delayed the procurement impact of the defense drawdown. The US prime fighter aircraft contractors will be forced to retrench because the cuts are greater than they can make up through globalization, diversification, or commercialization. What will they do?

Markets. Essentially, companies can: A) continue to focus on defense, B) try to apply their defense technologies to the civil sector such as system integration or information processing, or C) convert plants to compete commercially with new product lines.[92]

Structure. Kapstein lists 5 industry responses for defense firms burdened by old plants, old labor, a shortage of capital, and facing a declining market:[93]

- Mergers and acquisitions (e.g. Lockheed acquires GD-Ft Worth)
- Joint Ventures with domestic and foreign firms (e.g. JPATS trainer)
- Global purchasing of components to reduce cost (e.g. semiconductor chips)
- FMS export markets (as discussed previously)
- Co-develop civilian and military products(e.g. light rail vehicle for Los Angeles[94])

Maximum-Minimum "Maximin criteria" - *a basis for strategy selection*. This is another application of game theory. Game theory investigated when two players have several strategies available and different payoffs to you depending what the other player does — an *interactive competition.* Maximin criteria suggests that you pick a pair of strategies: first estimate your opponent's; then choose yours. You should plan on your opponent pursuing a strategy that will hurt you the most. Then, you should select from your available strategies the one that maximizes your goals against your opponent's minimization strategy. Maxi-min represents the strategy pair. How will contractors play this game? What would government's maxi-min strategy be?

Contractors: Shrink Faster than the Budget Declines.

In the *worst case,* a contractor could foresee a bleak market and little government help.

- The government will pursue laissez-faire policies during the downturn
- Global defense markets are shrinking or technology restraints hamper sales
- Commercial applications of defense technology haven't worked
- Moving away from core competencies invites failure.[95]

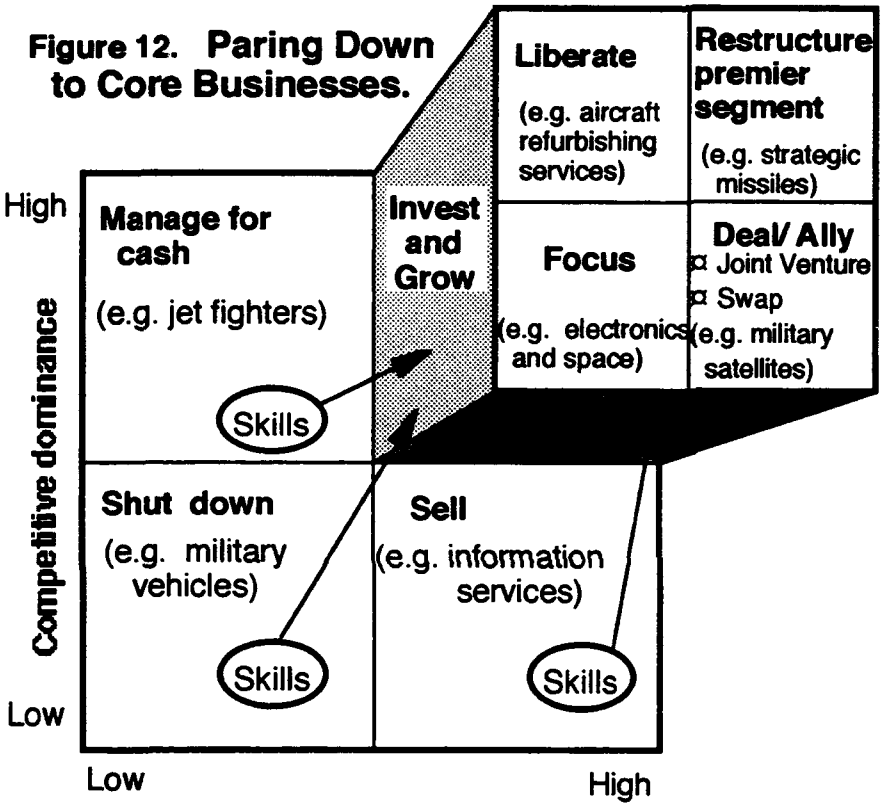


Figure 12. Paring Down to Core Businesses.

Facing survival (minimization strategy at its worst), Lundquist suggests the options are to strip down, shut down, sell, swap, or spin off units of the company in order to salvage the profitable from the unprofitable. This would collapse the overhead. Business would continue for activities in the upper right hand corner with orders for existing planes, spare parts, maintenance, and modification for life extensions and subsystem integration. Survival is very short-term oriented.

His advice is to act fast: faster than other contractors, and faster than the budget is declining. Only keep market areas you dominate and expect growth in demand. Exploit, sell, or shutdown other divisions and retain the best people. Defense contractors must identify the market segments in which they can establish competitive dominance. Resources from less attractive segments should be migrated to the potential core businesses as excess capacity and costs are stripped away.[96]

<u>A New Business Structure and a Nation of "Temps".</u> If Lundquist's analysis is correct that defense companies will downsize retaining 'cash cows' and focusing on core competencies with perceived future market demand, what will the future business structure look like. In my opinion, there will be two phases: first, product groupings of companies temporarily teamed to take advantage of distinctive competencies—virtual corporations[97];

and second, "just in time" labor[98] to respond to these quickly formed enterprises featuring collapsible overhead and accordion management—flexible sizing without penalty for hire and fire decisions.

The enduring, mass production business model will give way to contingent, customized organizations in temporary alliances to bring products to market faster. While companies may retain some "core personnel" appropriate to their "core competencies," they will try to use "just in time" talent just as we use MRP (manufacturing requirements process) to minimize inventory and process costs. The more government burdens employers with social costs, the more appealing the 'contingent' worker becomes. As evidence, our nation's largest employer is not General Motors (367,000 workers) or IBM (330,500), but is Manpower, Inc., with 560,000 in the world's largest temporary employment agency.[99] This labor restructuring into a day's pay for a day's work without long term security is akin to piecework pay. I believe this will be the US business direction.

Impact to Defense Planning. The reconstitution notion of preserving talent and storing tools, work-in-process, and weapon end items is wholly inappropriate in the context of rapidly formed and rapidly dissolved alliances of firms. Preserving a seldom-used process (e.g. ship welding) can be achieved by periodic government procurements from the business community or by nationalizing the process in a federal lab or military depot.

While I believe Lundquist's analysis of defense industry restructuring is appropriate for downsized requirements, I don't believe a cataclysmic fall is in our nation's best interests. The few survivors who can withstand the "purge" will certainly have leverage for future programs. However, the notion of preserving stability in a future defense industrial base is inconsistent with current business direction. The economic future will be too dynamic.

Government Strategy: Reliance on Arsenals

In response to a precipitous contractor decline/restructure, the government can continue to pursue the remaining business with the continuing contractors or increase reliance on arsenals. The future base must be efficient in peacetime. We must maximize military power with the reduced defense budget and not buy a lot of overhead. The capacity for surge shouldn't be bought by carrying excess capacity or stockpiling dated systems that may not be appropriate for future military needs. We should promote flexible manufacturing that can be efficiently used in peacetime and reprioritized for defense use in crisis. Increased competition between public and private is a politically acceptable way of eliminating inefficient enterprises who fail to modernize.[100]

The combined depot/arsenal system for all military equipment has a $13 billion annual budget. Over 33,000 aircraft are managed with 44 million **direct** labor hours.[101] However, newer aircraft are more reliable, requiring less maintenance. In the future, fewer aircraft and less work for remaining aircraft yield excess depot capacity. To eliminate service duplication and forecasting the reduced future workload, the service departments scrutinized their depot maintenance capacity. In a 15 January 1993 Memorandum to Deputy SECDEF, DepSECDEF, the service secretaries stated 14.6 million direct labor hours (3M for rotary, 11.6M fixed wing aircraft) are excess to requirements. They suggested four aviation depot equivalents could be closed.[102]

Fair Competition? Efficient Operations? "Publicly owned defense facilities are approximately 30% less efficient than their private counterparts."[103] Does that condemn civil service or does it mean arsenals have taken on "ash and trash" jobs that could not be operated profitably? It is hard to incentivize a monopoly activity—public or private. How can we encourage competition, retool with modern, flexible equipment, and still use the arsenals for non-profitable requirements? GOCOs (Government Owned, Contractor Operated) depots can combine government long-term investment in facilities with flexible private-sector operation.[104] We could compete the management of arsenals and modernize tooling for efficient operations. Choosing a GOCO vs. private firm should be a function of three variables: (1) Government funds already invested in the depot for weapon system support; (2) Life expectancy or life remaining of the end item; and (3) Technology cycle for system. Systems with a high demand function (low government investment, long life remaining, and rapid technology turnover) would favor commercial support over GOCO responsibility.

Defense Fusion. The intent of using GOCO management is to "fuse" commercial efficiency and innovation with upgraded tooling and facilities provided by government. Lundquist pointed out that good companies will concentrate in their pre-eminent competence in growing markets. Will only "losers" be left to upgrade and maintain our large, existing force inventory that we will rely on for the next 15 years. "The next technological breakthrough **doesn't** tend to occur in those [public or private] companies with huge amounts of capital tied up in the last generation of technology."[105] We have to retool; but, we don't have enough business ('critical mass') to afford to fund both public and private depot operations. I suggest we integrate civilian and military sectors with the government taking the lead in facilitizing with flexible equipment.

These upgraded arsenals must be allowed to compete. To date, Defense has competed component refurbishment (e.g. landing gear) between the logistics depots and private firms. Note, DOD has only competed *government* systems internally (between depots) and

externally (among commercial firms). I suggest depots compete for commercial systems as well. Why can't arsenals provide FAA 'C' and 'D' maintenance checks for commercial DC-10s? Military depots already overhaul KC-10 refuelers; except for tanker plumbing, there's little difference between the commercial plane and militarized version.

I believe it is questionable to replicate depot support capabilities for equipment widely used commercially; efficiency already exists.[106] However, unless we can benchmark activities against commercial enterprises, how can depot/arsenals be expected to be efficient? Overhauls and upgrades should be competed. The DBOF (Defense Based Operating Fund) initiative requires fair—and total—pricing of depots. It's the basis of awarding *outside* contracts; it should also be allowed for *inside* contracts. In the next decade, the aircraft jobs available for competition will be upgrades and overhauls. (Production contracts are already set.) Upgrades have positive impacts on subtiers regardless whether performed by a prime contractor or depot.[107] If the GOCO depot is managed by a prime, who loses?

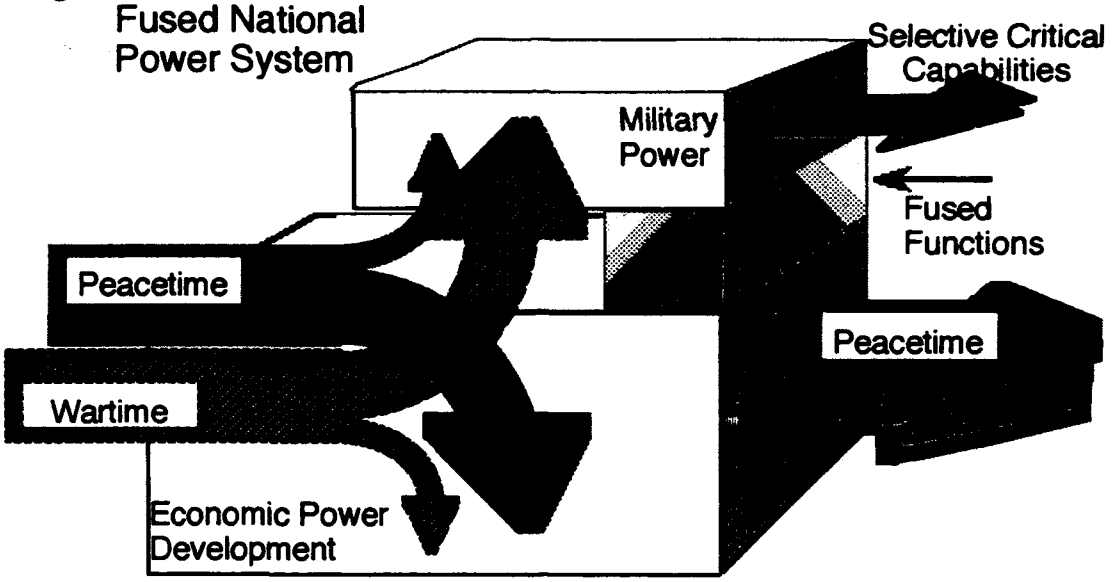
Why didn't pure Maxi-min strategy work? The premise for maximin is true competition, with no exchange of strategies before play —they're adversaries. Even though a *combined* strategy may result in a better payoff for both, there is no trust. Both plan on the worst and try to optimize in the area where they have control. Sounds like the leverage problem (bilateral monopolies) discussed in acquisition strategies. But we ***can*** discuss mutually beneficial strategies. Competed management of GOCOs is a way to incentivize a natural monopoly. The suggested *maximin* strategy of arsenals displacing commercial industry will not optimize US National power. I suggest we can avoid this all-or-none choice by looking at a *fusion strategy* for economic and military power.

Optimizing National Power: A Fusion Strategy.

"Indeed, the outcome of all of the major, lengthy wars among the Great Powers which have been surveyed...repeatedly points to the crucial influences of productive economic forces—both during the struggle itself, and during those periods **between** wars when differentiated growth rates cause the various Powers to become relatively stronger or weaker."[108]

Between Wars. The problem we are facing is what to do *between* wars. We need to demobilize the military, but must be prepared to *remobilize* from our economic base. One could argue that he who generates the most **wealth** between wars will have the best resource base to draw on in times of peril. Reconstitution emphasizes the military-economic relationship; a strong industrial base, a vibrant economy, and manageable debt are fundamental to true security.[109]

Fig 13. Resource Allocations for Fused National Power System



I argue for *agility* in resource allocation. In Figure 13, I extracted the military and economic blocks from the National Power Model (Fig 2). I'm ***not*** implying that the four blocks shouldn't be synergistically combined in competitive strategy; rather, I'm saying these two have to brought ***closer*** together. We should transform the isolated defense industry into an integrated civil-military "militia" base. A <u>minimum</u> production capability must be sustained for defense-unique sectors. Our national power rests with a world class commercial sector with agile *processes* that can easily switch form civil to military *products*.

On the input side, resource allocation must vary appropriate to the threat. No one argues we shouldn't have a "peace dividend." Our reconstitution problem is in *switching back* and the tremendous lead-time required. <u>The strategic imperative</u>: It doesn't matter how uncertain the environment we live in, provided we can react quickly enough to changes.[110] In times of peace, we should emphasize economic power, build wealth, and selectively maintain the decisive powers in our military. We must fuse agility by sharing functions between these blocks so we can optimize peacetime allocations and not waste time in wartime transition.

<u>Responsive Production.</u> We want to fuse (potential) defense needs with ongoing commercial operations so they can temporarily halt commercial work with negligible transition time/costs to expand defense production of vital items. Stockpiling involves large up-front investment that risks obsolete or irrelevant supplies for the present crisis (e.g. European woodland camouflage was inappropriate for Kuwaiti desert operations.) Excess capacity at the prime is akin to inefficient stockpiling. Where are the true

bottlenecks? I suspect at the sub-tiers or with diminished manufacturing sources for components no longer produced economically—by anyone—(vanishing vendor).

Configuration management for out-of-production systems requires trade-offs. Commercial systems will usually provide only the latest configuration even though intense integration efforts relied on a previously-issued version. Commercial lines do not normally retain previous editions—the market demanded an update; the production line was upgraded.

It is unlikely that production of any major weapon system will have to be surged for a conflict that falls short of a national emergency.[111] Therefore, surge capacity is best placed in agile manufacturing.

Military Context. Why this *industrial* emphasis in a *military* matter? Answer: **warning time** is a function of our (reliable) intelligence indicators, and the time delay for a political response.[112] Inside that warning time is the *advantage* our competitor can build from his industrial base. The agility of a rival's economic power means that he can convert domestic industry to military production easily—with little indication. The more flexible his manufacturing and more robust his production—the more **ambiguous** our indicators would be for a transition from domestic to military production. The more ambiguous—the longer it takes for our political resolve—the bigger the advantage he gains.

It seems specious to rely on unwrapping stored tooling and dated production processes to reconstitute a Cold War global force. In extremus, it will be a competition of our national system against rivals (Fig 3). The health of the national economy is vital to a successful mobilization. In a national emergency, the DTIB will need to draw extensively on the skills, facilities, and management of non-defense (medical, food, transport, ..) manufacturers.[113] As Fig 13 suggests, we want a convertible, fused economic/military development block with efficiency in commercial or defense production.

Industrial Policy: Building Agility to Bridge Military/Economic Power.

> Our principal rivals today are no longer military. They are those who pursue economic, technology and industrial policies designed to expand their shares of global markets.[114]

Industrial policy can be a government strategy to develop high-technology, high value-added, and high-growth industries. Options range from laissez-faire to interventionist, managed trade. My scope is limited to the survival of defense industries. Since we have seven US aircraft manufacturers, I favor broad government support for industrial advancement through macro-economic approaches—not picking winners or losers. My criteria for an industrial policy is that it is fair, effective in improving competitiveness,

necessary (we're better off *with it* than *without it.*), and sufficiently flexible to deal with short, mid-term, and long-range competition needs.

The government should serve in 3 capacities:

- **Threshold:** starting an activity no one else could hurdle—e.g. Space Shuttle
- **Common:** activities which benefit all and have non-defense, external benefits for the country. e.g. education, fiscal policy for investments, trade, environment.
- **Integrating:** encouraging cohesion and interface—e.g. Cooperative Research and Development Agreements (CRADAs) for technology transfer and diffusion of industrial technology information.

Industrial policy should aim to build national wealth in peacetime and build agility in fused military and economic functions to facilitate wartime transition. My recommendations are discussed in the context of these 3 government roles.

Threshold. The investment of national wealth for a space station and super-collider may be activities that should wait unless there is evidence that these projects will give us an unsurpassed economic/military advantage (or hobble competitors). Instead, funding basic research for commercial and defense breakthroughs (enabling, pre-competitive technologies) is appropriate. The National Science Foundation and Commerce's National Institute for Standards and Technology (NIST) can address civilian technology.[115] Defense has legitimate, unique needs; they should be developed by Defense Advanced Research Projects Agency (DARPA) and federal labs.

Dual-use technologies have an alluring patina but gloss over legitimate distinctions. Stealth, antidotes for chemical/biological warfare agents, and counter-measures against pulsed or electro-magnetic field weaponry provide either distinct advantage or tragic casualties if not explicitly addressed. Mutual benefits can be gained in commercial product and process research. To encourage a fused relationship, the government should consider providing equipment from down-sized or closed labs and depots to promising research efforts (especially to Universities [Colleges] and non-government labs).

Common. Improved infrastructure such as a fiber optic highway and improved technical competence for our workforce would benefit all. Reducing market impediments attributed to regulatory hurdles benefits all. Fiscal policies such as reducing the budget deficit and increasing investment are crucial if industries are expected to capitalize agile functions. "Expensing" capital equipment in the first year encourages retooling with advanced technology since it allows immediate write offs.[116] Businesses incur the entire liability at

time of purchase; yet, our tax policy delays costing. To encourage long-term private investment, a capital gains tax rate *inversely proportional* to the length of time a capital investment is held may discourage the short term earnings focus.[117] There must be a capital gains distinction between productive investments and art, real estate, and baseball card collections which don't raise productivity. These tax policies—expensing and inverse rate structure— offer business near-term investment flexibility and promote long-term funds stability.

Integrating. Technical assistance for manufacturing and applied research subsidies for collective efforts—government, corporations, consortiums, universities—(in any grouping) should be subsidized in part. Matching funds or tax benefits encourage government support to activities in demand. We don't want to support activities that won't be able to stand on their own *eventually.* There must eventually be a commercially profitable or national security market. SEMATECH, CRADA, and MANTECH represent good integrating (and fusing) functions.

Benchmarking could be coordinated with government allowing all who participate and share best practices to learn others' competitive processes. Trade secrets are excluded.

Antitrust. Theodore Moran has suggested a "4/50" rule saying that as long as there are more than 4 suppliers—**foreign or domestic**—we have no business protecting or limiting manufacturers.[118] It is easier for US firms to cooperate with a foreign rival than a US firm. We will allow a US firm to team with foreign companies to beat other US competitors, yet not allow US firms to team to outcompete foreign industries! Foreign dependency for cost-effective supplies should not trigger a xenophobic reaction. Foreign suppliers should be competitive and geographically separated so a regional conflict would not affect access.[119]

Tech Data Rights. Encouraging teaming to pool risks and distinctive competencies is thoughtless unless intellectual rights to product and process are addressed. Subcontractors should not be expected to cede data rights which give them competitive edge. Further, foreign firms should not have free access to intellectual property developed from our nation's wealth. A scheme similar to patent rights with shared ownership for co-development, a time limit, and a fee for outs ısers has merit.[120]

Manufacturing Standards. Standardizing commercial codes and formats for computer design and manufacturing instructions will ensure transportability and interface to the largest possible number of commercial firms. We want companies to be able to "plug in" for product partnerships. Establishing a standardized interface promotes economic integration.

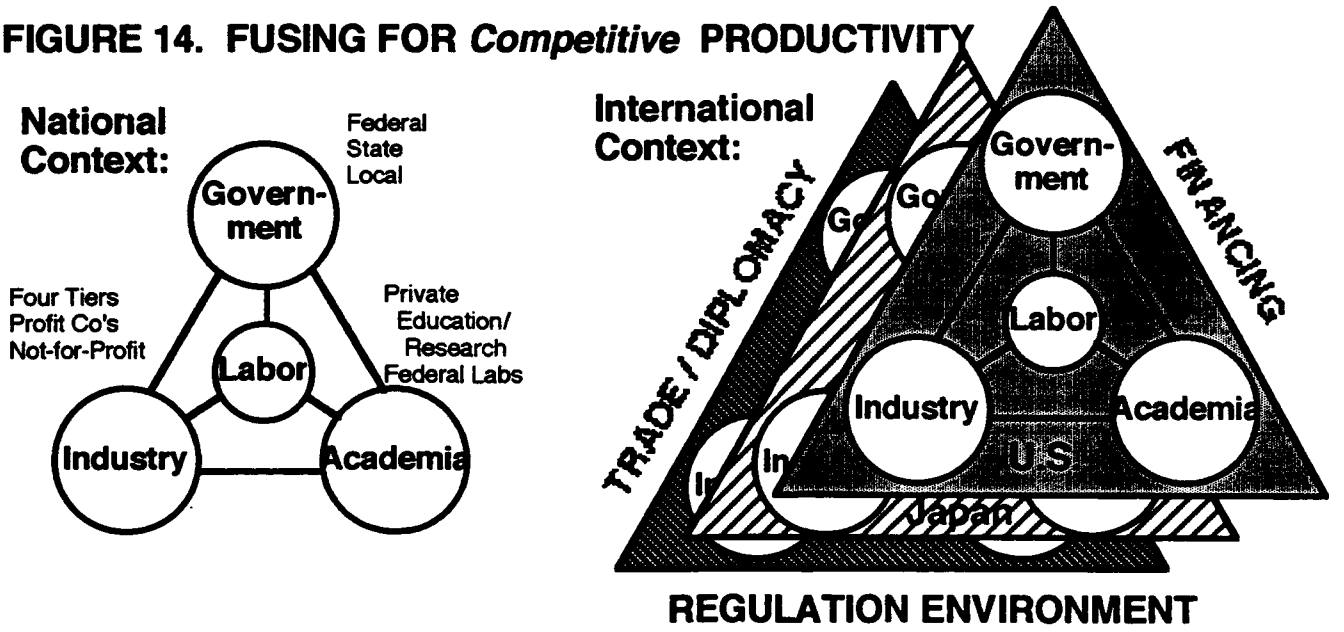
Trade. Exporting product is preferable to exporting ownership but we have to attract foreign capital for investment. High value jobs in the US should be encouraged. We want to sell product on merit and should demand a level playing field based on simple reciprocity.

Why not more specific. First, I don't think government currently knows the industry sub-tiers, multinationals, and supplier dependencies well enough to specify microeconomic sector policies. Gathering information costs money. Information to the government should be viewed on a cost/benefit basis. Will the value of government decisions improve competitiveness more than the cost of the information bureaucracy? I suggest limited mobilization exercises to examine specific military needs from industry.

Second, specific approaches invite parochial Congressional interest. The older, politically connected firms may be favored over new, growing companies. If a vital military industry is not viable without extensive government support, it should be nationalized or operated in a GOCO structure. Natural monopolies have less incentive to update their manufacturing technologies than companies forced to stay competitive. A government subsidy could be used for shareholder return, executive wages, or non-intended purposes. We shouldn't subsidize inefficiency.

Defense should not shoulder the cost of creating industrial competitiveness. The problems of economic competitiveness are beyond the means of the Defense Department. [121] We may need to reconstitute forces in the future, but we want to reconstitute them in a new way. A flexible, agile manufacturing capability is fundamental to economic and military power.

FIGURE 14. FUSING FOR *Competitive* PRODUCTIVITY



> Our nation must forge a comprehensive working partnership that links together the power of our government, our industrial sector including labor, and our academic community in order to *outcompete* foreign nations.[122]

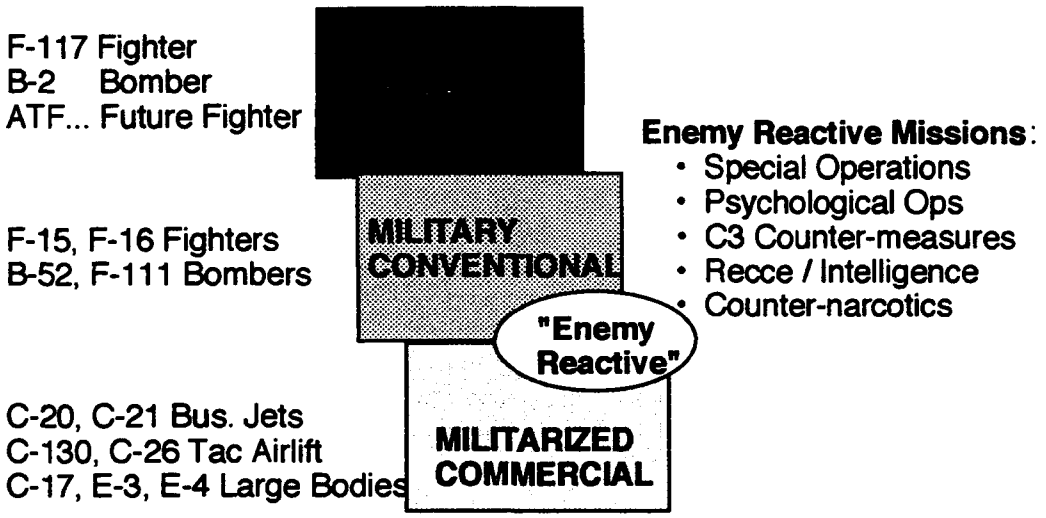
Figure 14 depicts this productivity cell in a national context. However, I believe productivity growth is an international competition and framed by trade policy, available financing for investment, and regulatory environment — macro-economic factors. While I suggest a fused approach for reconstitution, my recommended industrial policy aims at increasing economic competitiveness through macro factors.

> The United States does not own any divinely authored stone tablets entitling it to remain the largest and richest industrial economy in the world. Americans should judge themselves and their economic performance...on running well and giving all citizens a fair start at the race.[123]

VIII. Specific Applications to Tactical Aircraft Sectors.

> If the US Air Force is [generalize to read, US Forces are] going to keep winning brief, decisive, low-casualty wars, it must have high technology weaponry and the skills to make it work...Modern air forces are not readily reconstitutable and require years for production of aircraft and even longer to generate people skillful enough to fly, maintain, and fight with them...All this equipment has to be integrated in a modern air war. CSAF Gen. McPeak[124]

Fig. 15 FOUR COMPONENTS OF TACTICAL AIRCRAFT



TACAIR. I separate tactical aircraft into 4 sectors pictured in Fig 15. (1) Stealth takes a fundamentally different approach in survivability—minimizing ap parent size and passive systems. Protection is from low observability not jamming or decoys or dash speed. (2) Those subsystems are *added* to the military conventional aircraft. Powerful radars, radar warning receivers, self-protection suites, etc. are added to distinctively military aircraft. (3) Militarized commercial aircraft either adapt civilian planes for military purposes (e.g. trainers, avionics-filled B-707s) or have commercialized versions of the military original (e.g. L-100 version of C-130

Hercules). (4) The last category, *enemy reactive,* add or adapt subsystems to perform short-notice tasks. The uniqueness of this category is that the requirement for a system upgrade is based on the enemy. For instance, to conduct psychological operations against Iraq, TV broadcasts had to be in a European format, not US standard. Drug traffickers have more modern communications equipment than any national army; intercepting transmissions requires constant upgrades. Technology insertions are driven by immediate mission needs against different enemies.

Four Major New Tactical Aircraft? The Air Force is planning to acquire the F-22 and a Multi-role Fighter (MRF) and the Navy plans to buy the F/A-18E/F and AX deep-strike bomber. The plan to buy four major aircraft programs at $400 billion is "unaffordable."[125] Further, the Army wants the RAH-66 Commanche helicopter, the Marines want to upgrade the AV-8B Harrier jump jet and produce the Tilt-rotor V-22 Osprey, the Air Force's F-16 line has not closed, and the Navy wants to upgrade the F/A-18 C/D and F-14 fighters.[126] While I do not question that each program has merit, we cannot afford them all. We need ***operational fusion*** where platforms can perform more than one role for more than one service. The uniquely tailored weapon system optimizing *effectiveness* will have to be balanced with cost *efficiency* .

Service roles and missions will eventually change. The Joint Chiefs of Staff (JCS) Chairman, General Powell, stated JCS is considering whether the Navy should maintain its capability for long-range bombing or cede that mission to the Air Force.[127] That could kill the Navy-unique AX program and seriously impact the power projection capability of carrier battle groups. I have suggested that the Multi-role fighter (MRF) development be timed to replace obsolete British Tornados. This expands sales volume for lower unit costs, expands worldwide logistics posture, and may pre-empt a rival aircraft manufacturer. An F-16 derivative could be a good candidate.

Defense Budget Forecast. The 1992 EIA (Electronic Industries Association) forecast predicted a -7% annual decline in DOD expenditures though 1997.[128] Their forecast is simply based on delivering currently contracted items. But what happens in 1998? EIA predicts a *floor* ; the funding decline will stabilize as new planes are built or older ones upgraded to save our existing inventory from atrophy. Although EIA's assumptions make long-term sense, I suspect we will instead emphasize short-term savings and go lower.

How low will the defense budget go? William W. Kaufmann of Brookings forecast in March 92 a 10-year acquisition of 1,650 fixed wing aircraft for all services.[129] That's about half the 350/year rate of the '80s. However, the economic mandate in the November '92

election and President Clinton's revised budget will further cut procurement accounts. In my opinion, this should trim Kaufmann's estimate *by half again* yielding only 75 planes/year.

With intense maintenance we could probably delay necessary upgrades/replacements for the rest of this decade. Rationale: who has better planes than us? However, the problem will snowball until around 2005 when *all* of the aircraft may need life extensions or replacement. The F-22 will remain in engineering and manufacturing development for 10 years to mature production processes and lower unit cost. It's not immune to quantity reductions and stretch outs despite the fact that cost growth is unavoidable with schedule extensions. Today we have 7 aircraft manufacturers—Boeing, Grumman, Lockheed, McDonnell Douglass Northrop, Rockwell, and Vought. How many firms will be required for the 75/350 fraction of future workload? Arithmetic suggests two at most. Similar defense industry downsizing has already occurred in Europe.

Industry survival. Modification and maintenance of the existing inventory will become more important as new buys and major upgrades are extended. The decision to place depot responsibility with a public or private firm should consider three factors:

- Support dollars already invested in government depots/arsenals.
- Expected lifetime of the weapon system with upgrades considered.
- Technology turnover and complexity of system integration

I suggest different strategies for the four different aircraft sectors.

Stealth. Depot maintenance should be kept with the prime contractor. It has a future and there are distinctively competent US firms. The primary reason is to preserve the design teams for these complex, integrated configurations. An upgrade for any reason—stores certification for carrying new weaponry, engine upgrade, an emitter sub-system, survivability improvements against counter-stealth systems—all require complicated analysis to keep all elements of low observability balanced and minimized.

Conventional Military. These aircraft should be supported through a consolidated depot system—perhaps a GOCO. The support infrastructure has already been bought and one must consider system life expectancy and the expected rate of technology turnover. (Our systems are not obsolete until a competitor has something better.) I would expect a commercial firm to manage this maintenance activity for cash; it's not a growth industry. We can compete costs but can't expect industry investment. GOCOs combine government facilitization with commercial efficiency. The near term job of the government depots is to reduce excess capacity and provide joint service for system users—an emphasis on efficiency.

Militarized Commercial. Choice of government or military support should depend on the extent of the military modification. (A) For minimally modified aircraft, commercial standards should be applied. The benefits of reliability centered maintenance in use by airlines should encourage the use of FAA-approved 'C' and 'D' checks instead of military-developed overhaul specifications. (B) Some aircraft in this class are dominated by the tightly integrated modifications - e.g. flying avionics platforms. The overhaul of the aircraft is cheap in comparison to the removal, reinstallation, calibration, and test of the avionics systems. Inadvertent mangling of wire harnesses by an airframer — unaware of the special systems— could take forever for a military unit to troubleshoot and repair. *Best value*, not lower cost, should be the criteria for this category of aircraft.

Enemy Reactive. The host aircraft may be military unique or commercially derived; but in either case, it will have a mix of unique sensors and systems aboard. A near-term response will adapt an existing military system for a unique application or mount a commercial system which corresponds to the enemy's equipment. Often the initial installation may be temporary for the operation and then either: 1) remove, 2) technology roll-over upgrade, or 3) install permanently with proper logistics support. Unique capabilities may vary from plane to plane. In any case, there are not a large number of any single configuration. A combined government/integrating contractor team is recommended. A contractor alone couldn't source subsystems from other government aircraft as easily as a government agency could—particularly under tight security. A contractor may bring more innovative commercial applications to the problem. "Off the shelf" is a misnomer; they'll take what ever is available *on the shelf* to respond to the crisis. A GOCO structure could address the overhead costs in this unpredictable business base.

Radical New Approaches. Calls for revolutionary weaponry— more Stealth, electro-magnetic guns, laser 'death rays', unmanned delivery platforms — will continue. However, developing doctrine for integrated use on the battlefield takes time. Changing strategy costs money. To the extent that new weapons generally support existing notions, (firing electrons instead of bullets is conceptually similar) then these new systems will be adopted. A radical change in force structure would be unaffordable. The biggest problem we face now is not an enemy threat but a drastically reduced budget defining force structure and, in effect, dictating our strategy.

Summary

Conclusions

> So far as the international system is concerned, wealth and power, or economic.. and military strength are always relative and should be seen as such. Since they are relative and since all societies are subject...to change, then the international balances can never be still.[130]

The Cold War is ended; now, we are between war. Fundamentally, this paper addressed the question of what should we do *between wars* . Reconstitution is a hedge in our strategy to reduce standing military forces in this peaceful interim. The purpose of this paper was to examine reconstitution and provide a basis for political-military-economic, and psycho-social actions as we reduce and restructure our forces. Although we foresee many threats and expect more conflicts, we don't expect any to grow to global proportions. We are the only remaining superpower with absolute advantage in every category, yet the US is in *relative* decline—both militarily and economically.

Therefore, the paper also explored how to build national power between wars. A flow model of national power was developed and a framework for international competition presented as the new paradigm replacing the Cold War bipolar mindset. Game theory suggested new strategies for building national power and seeking relative advantage in competition. A combined co-operative/hobbling *external* strategy plus defense fusion *internal* strategy to preserve our unchallenged military superiority was defined. The cost-constrained strategy focused on maintaining relative advantage against peer competitors and recommended:

- Selectively downsizing our military but retaining decisive capabilities;
- Encouraging collective action to reduce suspicions and discourage military buildups
- "Hobbling" rivals' power projection capabilities and pre-empting foreign arms suppliers.
- Stressing economic power and building national wealth between wars, so we will have the economic/industrial base to prosecute the next war.

Today, our strategy is budget driven — not threat driven. Lacking a superpower threat, there appears to be no "floor" to the Base Force; the budget keeps declining. We created an unmatched, technologically superior, Cold War force from an industrial base emphasizing performance over affordability. The cost of "insurance" was high, but the Evil Empire meant to kill us. That expensive solution no longer fits the problem. Our recent, unqualified success in Desert Storm could lead to complacency. We had overwhelming force to score a first round knockout, but Saddam Hussein is no Sun Tzu. Without risk of global war, we will have made the world "safe" for regional conflict and bolder economic competition.

An international competitive framework among peer competitors is the suggested model for the post-Cold War era. Competition of national systems is tested in a world arena. Power is relative and dynamic; therefore, strategies must be competitive and continually updated.

Denial Strategy. In a competition, slowing down or stopping your rival is equally effective to improving one's own forces. With a constrained budget, it is cheaper to compete at lower force levels—but the risk of breakout by an enemy is higher. We can downsize, but we need to retain decisive military functions and deny other nations power projection forces which can threaten us. The US should maintain the complex, decisive force elements (such as TACAIR) and co-opt, outcompete, or deny rivals these critical capabilities. Superiority is not required across the board. We may not have superiority in space; yet, we cannot allow any nation the capacity to deny us access. Further, we can allow foreign dependency provided there are sufficient, geographically separated suppliers or we could reasonably reconstitute production in the near term (such as manufacturing small ammunition). The denial strategy is true for decisive military functions and economic activities as well (e.g. high-tech, high-value functions.)

"Hobbling" rivals can be achieved by seeking peaceful, supporting goals—not just predatory tactics. Making the UN work and offering US leadership in regional issues can reduce the threat levels other nations perceive and thus, their need to build national military forces. Through hobbling, we try to reduce current, world-wide military forces. Our military-industrial base should not be preserved by proliferating arms; in fact, "spoiling" the potential export market was recommended by transferring excess defense articles to stable nations in various parts of the world.

Military power provides short-term security; economic strength provides for the long term. To deal with long-term uncertainty, we need a level of "insurance," as much warning as possible, and a capability to react quickly to unpredictable situations. Near-term "insurance" is the military element. A strong economy is the long term protection. Crisis response and mobility will be crucial. These crises will be "come as you are" affairs. We want air superiority—not air equivalency! Quick reaction, mobile forces accomplish nothing if we can't secure the skies for transit and safe landing. TACAIR was the focus of the military element for this reason.

I believe there is a minimum (non-threat based) level of military power necessary between wars—in part, because a nation's identity is tied to the type of weapons it keeps. For example, the British Empire ruled the seas with less emphasis on land power. Our US military is an expeditionary force mirroring a national emphasis on technological

superiority and mobility. Further, there is a balance required in the national power elements: political, military, economic, and psycho-social. A credible military force influences political outcomes and shields our citizens engaged in overseas economic enterprises. Budget for force structure will be based on perceived threats. One cannot dictate a precise level for current forces; but, that's why U.S. leadership in crisis response was emphasized. We preserve authority and prevent adventurism.

The strategic imperative: It doesn't matter how uncertain the environment we live in, provided we can react quickly enough to changes.[131] In times of peace, we should emphasize economic power, build wealth, and selectively maintain the decisive powers in our military. Reconstitution—rebuilding global-sized armies— is inconsistent with this flexibility. Preserving weapons or production tooling is expensive and the systems saved may be irrelevant to future conflicts.

We must fuse agility by sharing functions between military and economic development so we can optimize peacetime allocations and not waste time in wartime transition. We don't want to reconstitute by stockpiling obsolete inventory or preserving outmoded manufacturing processes. We want to "constitute" the future defense technology-industrial base by continuing technical R&D to ensure superior military weapons and improve commercial producibility, manufacturing flexibility, and cost-effectiveness for affordability. A *surge* would involve a diversion of assets from the commercial sector rather than a creation of forces from a segregated military-industrial complex.

How do we recapitalize while we're getting smaller yet are tasked to continue worldwide military operations? Driven by *affordability/efficiency* needs for military and *competitive* needs for industry, both need to retool. Since we're at peace with a large military inventory and with technological advantage to last throughout the decade, industry was prioritized. Economics is the limiting factor in the development of a military defense system.[132] Our defense industry has significant excess capacity and should downsize/consolidate, but will survivors have the capability to invest in flexible manufacturing processes? Those firms can't download all the technology, capital equipment, and scope of miltary integration projects to smaller-scale commercial demands. The Defense monopsony effectively created a market-managed economy. We are trying to make them operate in a free market, much like the Soviets are trying to convert their pricing, marketing and competitive structure. DOD has been tasked for industry impacts due to downsizing, yet *there is no strategic guidance* for the downsizing. The result: the defense industry is in chaos without regard to optimizing national power.

Should we actively preserve a defense industrial base? As a "hedge", facilitating government-owned, contractor-operated (GOCO) depots is suggested. Government operation versus private operation should be a function of three elements:

- Sunk government investment in weapon system maintenance support
- Expected remaining life of the weapon system
- Technology turnover rate. (Slow turnover favors government operation.)

An industrial policy is recommended emphasizing broad macroeconomic factors — not industry specific which would favor the politically connected. Acquisition policy—the way we buy things—has to change as well. The government and industry both have significant leverage—but at different times. This adversarial relationship has caused major losses for every defense contractor and the government funds cost growth and schedule delays. Yet the weapons work very well. Adopting commercial manufacturing standards offers expanded technological opportunity and is appropriate for new efforts but we cannot afford to totally abandon commonality with our investment in existing support structure.

Tactical aircraft are separated into 4 sectors: stealth, conventional military, militarized commercial, and "enemy reactive" — crisis response missions. Separate support strategies are recommended for each component. Obsolescence is the only compelling rationale to support future upgrades. Obsolescence is when your enemy has something better than what you have. However, we must still pursue technology advantages—to minimize US losses in regional conflicts; to minimize civilian losses and collateral damage; and to achieve overwhelming decisive victory when the military is called on to break the enemy's will.

A dual-track technology approach is recommended—one track to address breakthrough concepts and the other track to support near-term military requirements. Maturing sub-systems in the five 'enemy reactive' missions is suggested. There must be mission rationale—technology for technology's sake won't support budgets. The definition of *mission* must be broadened to allow unconventional solutions. We cannot afford all the proposed replacement aircraft programs. *Efficiency* in joint mission applications will have to be balanced with single mission/single service *effectiveness.*

I fear that notions of available warning time and our large current inventory will make the 1990's a "do nothing" decade for maintaining military advantage. There is an implicit faith in our overwhelming military lead and trust in America's ability to react in a future crisis. Addressing Detroit business leaders, President Clinton stated "Americans are at their best answering alarm bells in the night."[133] However, national strategic preparedness

planning remains essential to balance the elements of national power in order to provide for national security while generating national wealth.

Recommendations

The term *reconstitution* does not reflect our emerging strategy. Reconstitution is a term originally meant to rebuild our global forces if the Soviets did not comply with the CFE (Conventional Forces in Europe) disarmament treaty. If we want to reconstitute forces in the future, we will need to rebuild ("constitute") them differently. It will not be affordable or financially attractive to keep commercial lines "warm" with low rate production.

Defense fusion should replace *reconstitution* as a pillar of national security strategy. Fusion can connote the integration of military and economic power to emphasize agile, flexible manufacturing rather than a segregated *defense* industry. Fusion can also connote 1) the active/reserve mix in crisis response, 2)technology fusion as the wellspring of innovation, and 3)dual-use commercial/military research and applications, etc. Operational fusion indicates 1) joint/coalition war fighting and 2) utilizing weapon systems for multi-service roles or with modular adaptations for multiple missions. With an *economic* fusion strategy, we should be able to produce almost *anything* from our agile manufacturing base. However, it would be a mistake to think that we could ever make enough of *everything*. The need for mobilization plans and defense priorities remains critical. Contingency funds for crises and realignment of the active/reserve mix for non-traditional military roles will enhance US response time. Mobilization exercises should periodically test capability.

Internally, the US should have a broad-based industrial strategy. Macroeconomic approaches for investments, fiscal policy, R&D, personnel training, information distribution, etc. encourage economic investments that stay in America. We want to develop high-technology, high value-added, and high-growth industries in the U.S. The government should not subsidize dying/inefficient industries. Facilitizing GOCOs is recommended to bring competitive, commercial efficiency to depot tasks with the government investing in modern tooling. A more specific industrial policy is not recommended fearing it will favor the politically connected .

Externally, we should try to make the world safer on a regional and global cooperative basis, but emphasize defensive/denial strategies in bilateral matters. It is in our interest to make the UN work and have nations feel less threatened so they don't respond with an arms buildup. Under the guise of US leadership in crisis response, we should attempt to hobble

foreign rival's power projection capability. I suggest transferring part of our aged air defense force to separate global areas to pre-empt foreign arms suppliers and retain global access. The "hobble" strategy isn't predatory tactics, but proactive measures to keep the world safe. We should maintain decisive forces and co-opt, pre-empt, or deny equivalent capability by foreign rivals.

Downsizing of forces and forward presence should be predicated on supportability, mobility, and military strategies for crisis response and regional conflicts. Conflicts will be "come as you are" affairs. Major reductions will come from conventional ground forces. Attempting major strategy changes with different force compositions in the future may be unaffordable. Reconstituting nuclear weapons and delivery means will remain the underpinning of our downsized conventional forces. Being unprepared with conventional forces may:

- Discourage American involvement in global affairs (Fortress America mentality) or
- Preclude unilateral capability for action. We will have to find an ally/coalition to act.
- Paint us into a nuclear corner.

Building national power between wars is fundamentally an issue of resolve in US leadership. We must weave together defense security strategy with national economic policies—economic strength is fundamental to our long-term security. We must fuse allies, government, and business. The economic resources required are beyond the means of the Defense budget. International competitiveness and relative advantage on a global scale require all elements of national power to be synchronized in purpose. The competitive international framework is offered as the proper perspective for the dynamic race of relative national advantage.

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